LIGHTCONVERSE

User Manual

Release 308

www.lightconverse.net

LIGHTCONVERSE - VIRTUAL 3D SHOW PLATFORM

FOR THEATRE ◢ CONCERT ◢ CLUB ◢ CORPORATE EVENTS ◢ ARCHITECTURAL PROJECTS

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LightConverse User Manual

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LightConverse software is released as per the LightConverse End-User License Agreement (EULA). For further details, please refer to the eula.txt file located on the LightConverse installation CD.

This manual may be printed provided that its contents are not modified or changed.

Chapter 1:
Introduction, Configuration & Initial Operation

This chapter covers the following topics:

- *1.1 Introduction*
  - *1.1.1 Features*
- *1.2 Hardware and Software Requirements*
- *1.3 Installation and Startup*
  - *1.3.1 Install Software*
  - *1.3.2 Startup Options*
- *1.4 Upgrades and Technical Support*
- *1.5 Initial Operation*
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1.1 Introduction

Thank you for purchasing LightConverse, a powerful Virtual 3D Show Platform for integrating and visualizing multiple show disciplines including lighting, video, laser, pyrotechnics and moving objects (such as trussing, video screens, staging, sets, and performers).

In addition to a photo-realistic, real-time 3D Visualizer, LightConverse offers an optional on-board control software ("**Full Processing Mode**") for customizable programming and playback solutions of any size show, including theatre, concert, corporate, club and architectural applications.

The 3D Visualizer can be used in conjunction with the on-board control control software, or independently ("**DMX Visualization Only Mode**") with any DMX, Artnet, or sACN capable lighting control console.

1.1.1 Features

- Full 3D real-time visualization (8.5 MP rendering) of 16 DMX universes over ArtNet (I & II) and sACN protocols.
- Direct connectivity with HES Hog3 (PC and console), Hippotizer, Pangolin Laser software, Zero88 consoles (bidirectional), Avolites PC simulators and consoles, ETC consoles (ETC3Net) LightFactory and MagicQ.
- Optional DMX In/Out hardware interface for connection to any type of DMX lighting control console or fixture.
- User selectable resolution and video quality, frame rates of 25 - 100 FPS on most PCs.
- Customizable 3D libraries include fixtures, staging, trussing, speakers, furniture, people, etc.
- ·Dynamic layers for DMX controlled moving objects - truss, sets, staging, video screens, even performers can be moved to multiple positions, rotated and scaled in any cue.
- ·DMX controlled modulation of Diffuse, Specular and Emissive RGB objects.
- ·Transparent objects lighting (glass, water, water screens, etc.).
- 16 independent video streams can be applied to any object (video screens, walls, etc.) and triggered by DMX.
- Accepts three live video inputs (via USB or FireWire) for use with Media Servers and other video devices.
- Animated objects (lasers, pyrotechnic, video screens - including HD).
- Animated smoke simulation (Room and Open-Air behavior).
- Manual and DMX control of the view, camera moves, ambient light level, and smoke level.
- 3D Import / Export of .DXF, .X (DirectX), and .3DL (LightConverse) files.
- 3D stereo glasses mode for added 3D realism.
- Automatic horizontal and vertical view rotation.
- Fixture features include:
    - Realistic moving light and conventional fixtures with accurate simulation of split colors, parameter timing channels, black-out while move, etc.
    - Fixture Constructor for adding new fixtures to the library.
    - Realistic fixture body visualization.
    - Complete photometric visualization.
    - Bloom, HDR and Specular light effects.
    - Per-pixel light calculations.
    - Photo-realistic gobos and colors (6 wheels per fixture, static and rotating).
    - Gobo and prism rotation.
    - Zoom, Iris, Prism, Dimmer, Strobe, CMY, Frost, Saturation effects.
    - Shutter cuts.
    - Photo shadow for gobo projection.
    - Volume shadow for beams.
    - Manual beam (follow-mode) Pan / Tilt positioning & Pan / Tilt Shape generator (using onboard controller).

1.2 System Requirements

Critical Minimum Configuration

- CPU: AMD Athlon X2, Intel Core Duo.
- 3D Video Card: Any card with Shader-Model 2 or 3 capabilites.
- RAM: 512 MB.
- OS: Windows XP, DirectX 9.0.
- HDD free space: 275 MB.

Recommended Configuration

- CPU: Quad Core AMD Phenom II.
- 3D Video card: nVidia GeForce GTX285.
- Dual channel RAM 2Gb (2 x 1024MB).
- OS: Windows XP or Windows Vista, DirectX 9.0c.
- HDD free space: 300 MB.

1.3 Installation and Startup

1.3.1 Install Software

1. Insert the LightConverse CD in CD-ROM drive. If CD does not automatically start, navigate to the CD-ROM drive root and run autorun.exe.
2. Select **INSTALL** in splash screen to begin setup.
3. Select **Next** in the Setup Wizard.
4. Select **Next** in Information Screen.
5. Select destination folder location where LightConverse will be installed (default is C:\LightConverse308). Select **Next**.
6. Select additional tasks if desired (Desktop & QuickLaunch icons, USB driver for Replay interface). Select **Next**.
7. Setup is now ready to begin installation. Select **Install** to proceed.
8. Once installation is completed, select **Finish** to end operation.

1.3.2 Startup Options

Regular Startup

To start LightConverse, select "LightConverse" from Windows Start Menu / Programs / LightConverse, or run "lc.exe" in the folder in which LightConverse was installed (default is C:\LightConverse308\lc.exe).

Windowed Mode Startup

To start LightConverse in a Window, select "LightConverse in Window" from Windows Start Menu / Programs / LightConverse or enter "C:\LightConverse308\lc.exe window" command in Windows Start Menu / Run. Please note that although windowed mode is more convenient when running multiple applications on one PC, LightConverse will have slower performance and lower picture quality.

Maxpower Startup

To start LightConverse in "Maxpower" mode, enter "C:\LightConverse308\lc.exe maxpower" command in Windows Start Menu / Run. Maxpower mode allows the software to operate more aggressively by disabling CPU power-save and resource sharing functions. Maxpower mode will also disable monitor synchronization in order to increase frame-rate (FPS). Please note that this mode is not recommended for single-core CPU's.

Note: If your video card supports NVIDIA TurboCache technology, you may want to consider turning off TurboCache. TurboCache allows the video card to dynamically use a portion of the system memory. Disabling TurboCache will allow LightConverse to only use the video card memory, thus inceasing performance. For more information, see http://howtotroubleshoot.blogspot.com/2007/05/how-to-disable-turbocache.html.

1.4 Upgrades and Technical Support

- To upgrade your version of LightConverse to a higher level, please contact us. You will only be required to pay the difference in price between versions.
- For quick help in any screen, hover your mouse over the area that you would like help in and watch the top of the screen for a short scrolling message.
- Video tutorials of many of the topics described in this manual are available on the installation CD or at www.lightconverse.net/lc/download-l.htm.
- An online support forum of LightConverse users is available at www.lightconverse.net/lc/lc_forum.htm.
- For additional technical support or to upgrade your version of LightConverse, please see below or www.lightconverse.net/lc/lc_contact.htm.

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1.5 Initial Operation

1.5.1 Setting Language and Display Resolution / Color Depth

If necessary, select the operating language from the top left area of the **Start-up Screen**:

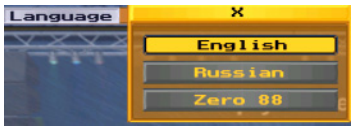

Figure 1

The **Display Resolution** [1] may be selected from the top left area of the **Start-up Screen** also. It is advisable to run LightConverse in your default Windows desktop resolution.

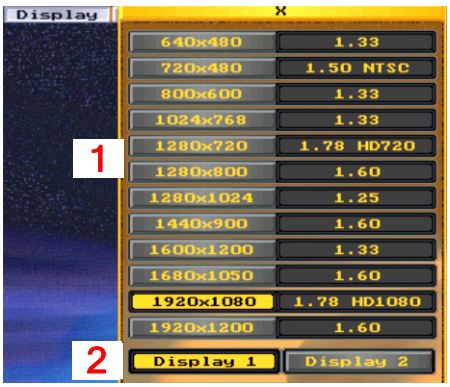

Figure 2

Note: When recording AVI movies to send to clients, the resolution should be changed to match the video size and standard (NTSC, PAL, HD) that the movie will be played back in. If the movie will be played back on a PC, all resolutions will work fine, however, the size should be selected to be as close as possible to the aspect ratio of the client's monitor to allow for a proper fit. *(See Section 1.5.6.2 for more information on recording an AVI.)*

The **Color Depth** is automatically set to 32 bit. (Note that 16 bit is supported if the Color Depth is configured as16 bit in Windows. This will give a small increase in performance when using slow video cards.)

Note: Display resolution changes are not available if LightConverse is run in windowed mode *(see Section 1.3.2).*

1.5.2 Adding a Second Display Monitor

If you are using a second monitor, you can display LightConverse on either monitor by pressing one of the **Display** buttons [2] as shown in *Figure 2* above.

Pressing the Scroll-Lock key on your keyboard will also switch the displays (does not apply when running in windowed mode).

Note: You must configure Windows to extend the Windows Desktop for a second monitor before starting LightConverse.

1.5.3 Selecting Operating Modes

Figure 3

As mentioned in the Introduction section, LightConverse can be operated in two modes: **Full Processing** *(Chapter 4)* or **DMX Visualization Only** *(Chapter 5)*. The mode is selected from the bottom right area of the **Start-up Screen**.

Note: Full Processing Mode is only available with Design, Media, and Unlimited versions of LightConverse. If you are using Net-In, Full Processing Mode will not be available.

Figure 4

Note: If have not purchased LightConverse yet and are evaluating our main demo version without a USB license dongle, you will not be able save any data. However, you can use LightConverse in 2D "Safe Mode" to run software for free lighting control without save limitations.

Note: If you are evaluating one of our OEM demo versions (Avolites, HES Hog3, Hippotizer, Pangolin, Z88): You can directly connect without a USB license dongle The OEM demo versions are fully functional (with each specific manufacturer) and completely unlocked for one hour blocks.

1.5.4 Select or Create a Database folder

After selecting the operating mode, the **Main Screen** will open. (If this is the first time operating LightConverse, the default demo database will load. Otherwise, the last opened database will load.)

Note: The database is saved automatically when closing LightConverse.

Figure 5

To select an existing **Database Folder**:
1. Press **Select** (located in **Setup Menu** at top right of **Main Screen**).
2. Select Database Folder name from Folders List.
3. Press **Select Database Folder** button.

To create a new **Database Folder**:
1. Press **Create** (located in **Setup menu** in top right of **Main Screen**).
2. Type new Database Folder name.
3. Press **OK.**

Note: The Database Folder contains all your project files and is located where LightConverse was initially installed (for example, C:\LightConverse308\Database_MyShows).

1.5.4.1 Saving a Database Folder

To save the entire contents of a Database Folder, simply copy the Database Folder via Windows Explorer. The Database Folder can then be saved to another location, i.e., USB memory drive or CD-ROM.

1.5.5 3D-World Navigation

- To move the camera up or down, use the Up / Down arrow keys on your keyboard. To move the camera left or right, use the Left / Right arrow keys. To zoom the camera in and out, press the Home / End keys.

Note: In **Full Processing Mode Main Screen** *only:* Camera keys must first be assigned as Hot-Keys, see *sec. 4.8* .

- The mouse scroll wheel can be used for up/down camera moves while **outside** of the **Compass** area.

1.5.5.1 Compass

To zoom or rotate the view, place the mouse **inside** the **Compass** area (lower right area of the 3D View) and use one of the following methods:

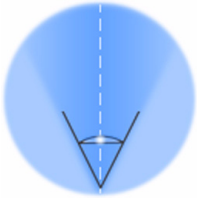

Figure 6

- To zoom the camera in and out, press and hold the left mouse button while moving the mouse vertically.
- To rotate the room in the horizontal plane, press and hold the left mouse button while moving the mouse horizontally.
- To rotate the room in the vertical plane, rotate the mouse scroll wheel.

1.5.5.2 Room Menu

To open the **Room Menu**, right click in the **Compass** area of the **3D View** in the **Main Screen**.

Figure 7

8 To switch to FullScreen view in the Main Screen, select **FullScreen** [1]. Select **Desktop** to return to the desktop view.

1 To automatically pan or tilt the room, select the Left/Right or Up/Down **Rotation** buttons [2].

2 The camera position X/Y coordinates may be adjusted via the camera centre coordinates cross-section area [3]. (Left click and drag the +)

The **Camera FOV** (field of view) may be changed between Zero, Normal, and Wide perspectives [4]. **Default View** [5] options can also be selected.

3 The **Ambient** light and **Smoke** levels of the room may be adjusted from 0 to 100% by dragging their respective sliders [6] with the mouse.

4 Select **DMX control** [7] for DMX control of ambient light, smoke levels and camera functions with a lighting console (DMX-in) or LightConverse in Full Processing mode (DMX-out). Note that this mode will automatically be turned off whenever any of the functions are operated manually via the Room Menu. *(See Section 3.10, Patch Camera to DMX, for more information.)*

5 Pressing the **Quality** button [8] in the **Room Menu** will open the following menu:

Figure 8

9 **Shadow Quality** [9] can be set to three different levels, **High**, **Normal**, and **Low**. Using **Low** allows you to operate more fixtures in the visualizer because it takes a smaller size of video memory. **Supersampling** allows for more accurate shadows (generates 1 gray pixel between black and white pixels).

10 **Smoke** presence can be simulated as it would behave in **Room** or **Open-air** venues [10]. Pressing **Animation** will show simulated smoke movement in the light beams.

11 **High Dynamic Range** [11] allows for a greater dynamic range of luminances between light and dark areas. Must be selected for highest quality operation!

12 **F.S.A.A. 4X** [12] is a screen anti-aliasing mode used for highest quality operation, especially with video cards capable of 20 FPS or higher. Also recommended when low screen resolution is used for AVI recording *(see Section 1.5.6.2).*

13 Press **3D-Stereo glasses** [13] when using 3D glasses for added realism. (When using 3D glasses, make sure your left eye is lined up with the red lens.)

14 The 3D window aspect can be set to **Normal** or **Wide** angle views [14]. Wide angle is used for horizontal compensation of wide monitor distortion when using a 4:3 format.

15 Press **APPLY** [15] after making any changes!

1.5.6 Print Screen and Video Capture

1.5.6.1 Print Screen

Screenshots of your design can be captured instantly thus enabling you to send photo-realistic images to your clients without having to wait for rendering.

To capture and save a screenshot, press the Print Screen key on your keyboard. The screenshot files are saved in a .JPG file format and are located in the **_Screenshots** folder where LightConverse was installed (for example, **C:\LightConverse308_ScreenShots**).

Note: Screenshots of the 3D Visualizer are always captured as a Full Screen view.

Note: Capturing screenshots is an actual independent rendering process, not just a copy of the screen!

Rendering resolution depends on your videocard and what version of LightConverse you are using:

Unlimited, Media: 3360 pixels horizontal using current monitor aspect ratio.

Net-In, Design: 1680 pixels horizontal using current monitor aspect ratio.

Note: Using FSAA-4x will not affect the screenshot quality. Thus, it's better to turn it off in order to save video memory and increase the screenshot resolution.

1.5.6.2 Video Capture

Live fullscreen video of your show can be captured in AVI format by using a video capture software that uses standard video codecs (Catch3D is one example). A list of some available choices can be found at www.brothersoft.com/graphics_design/screen_capture.

A recommended video capture software (FRAPS) can be found at www.fraps.com. Note that although this video capture software offers very high quality results, it uses its own high-power codec and this requires some knowledge of how video codecs work. The special real-time FRAPS video codec will need to be converted to a public codec format before sending to a client (www.virtualdub.org provides a free conversion software). Alternatively, the client can install the FRAPS software on their PC in order to view the AVI. If FRAPS is used, the following FRAPS settings should be applied for best results: FRAPS Movies-menu: Full-Size, 25 FPS, Nocursor, No sync. Note that if "No sync" is selected, the resulting video will be 25 FPS even if your PC can't provide that frame-rate due to a slow video card.

Note: If you are using a slow, low-end video card, the captured video may be faster than the actual show. When in Full Processing mode, Grand-speed correction must be used in this case *(see Section 4.6.7).* When in DMX Visualization Only mode, the speed corrections can be made with the console.

Before recording, the resolution should be changed to match the video size and standard (NTSC, PAL, HD) that the movie will be played back in. If the movie will be played back on a PC, all resolutions will work fine, however, the size should be selected to be as close as possible to the aspect ratio of the client's monitor to allow for a proper fit. *(See Section 1.5.1 for information on changing screen resolution.)*

Note: Using FSAA 4x is recommended when recording AVI at low screen resolution.

1.5.7 A note about applying changes

Some pop-up windows in LightConverse require confirmation of changes made by pressing an **Apply** button.

If there is no **Apply** button in a pop-up window, any changes made in the pop-up window have an immediate result. Simply close the pop-up window thereafter.

Chapter 2: Creating a New Venue

This chapter covers the following topics:

- *2.1 Getting Started*
  - *2.1.1 Selecting, Duplicating, and Deleting Objects*
  - *2.1.2 Positioning Objects*
  - *2.1.3 Rotating Objects*
  - *2.1.4 Setting Object Size*
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  - *2.6.1 Camera Operations*
  - *2.6.2 Shortcuts*
  - *2.6.3 Using Room Editor Hot-Keys in FullScreen*

2.1 Getting Started

Before starting, create a new database folder that you will use to save your project in *(see Section 1.5.4).*

Figure 9

To begin designing your new venue, select **Room** [1] from the **Setup Menu** in the **Main Screen**. A default room in the **Room Editor** screen will open as shown in *Figure 10* below. Use this room as you follow the example tutorial in Section 2.2.

TIP! Remember, for quick help in any screen, hover your mouse over the area that you would like help in and watch the top of the screen for a short scrolling message.

Many of the operations in the Room Editor can be quickly executed via Hot-Keys. This will be indicated in this chapter as, for example, [Hot Key = Delete]. *(See Section 2.6 for more information on Room Editor Hot-Keys.)*

Use the **Undo/Redo** buttons *(see* [2] *in Figure 10 below)* for any changes you may wish to make. [Hot Keys = Ctrl+Z or Ctrl+X].

Note: For using DMX controlled moving objects (Dynamic Layers), see *Section 2.2.6.*

Figure 10

2.1.1 Selecting, Duplicating, and Deleting Objects

Objects are chosen from the **3D Model Library,** which is opened by pressing **Browse 3D Model** [11].
See *Sections 2.2.3 - 2.2.5* for examples.

<u>Selecting</u>

- To select an object (for example, a room wall, truss, or furniture piece), just click on it. You can also select an object by left-clicking on its name in the **Room Object List** [3].
  [Hot Keys = **-** (previous) and **+** (next)].
- Multiple objects can be selected by holding down the **Ctrl** key while making selections.
- Double clicking on an object will select all same type objects if the object is not assigned to a layer. If the object is assigned to a layer, all layer objects will be selected. *(See Section 2.1.5, Assigning Objects to a Layer).*
- Left-clicking an object while holding down the **Shift** key will select all objects from the selected object to the last object in the Room Object List.

Note: To select a transparent object, switch to either **Paper** or **Plot** views. *(See Section 2.5.1 for information on Paper and Plot views.)*

Duplicating

- To duplicate an object, select it, then press the **Duplicate** button *(see* [4] *in Figure 10)*. The new object will appear in the same position as the original, ready to be repositioned *(see Section 2.12 below, Positioning an Object)*. [Hot Keys = Ctrl+D].

Note: Don't forget to reposition the duplicated object! Two equal objects in the same position will not be lit correctly.

Deleting

- To delete an object, select it, then press the **Clear** button *(see* [5] *in Figure 10)*. [Hot Key = Delete].

Note: The Mouse tool functions (see [6] in Figure 10) include object selection and object positioning . [Hot Key = Alt]. (For more information on positioning an object, see Section 2.1.2 below.)

2.1.2 Positioning Objects

There are various ways to position selected objects:

- Press the button *(see* [6] *in Figure 10)*. The objects can then be dragged with the mouse in a secant plane.

Figure 11

- Set the object's **X**, **Y**, and **Altitude** coordinate values via the Position section as shown in *Figure 11*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.
- A coordinate value can be entered directly by pressing . (One arithmetic operation is allowed (+, -, *, /), for example, 2.50+1.25. This is useful to shift the object by its dimension value after duplicating. If multiple objects are selected, the operation will be applied to each of them separately.)

2.1.3 Rotating Objects

There are various ways to rotate selected objects:

- Press the button *(see* [6] *in Figure 10)*. The objects can then be rotated in a secant plane with the mouse wheel.

Figure 12

- Rotate the object's angle along the **X**, **Y**, and **Z** axes via the Rotation section as shown in *Figure 12*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.
- The object's angle can be quickly set via the **Fix.-it!** button. [Hot Key = Ctrl+R].

2.1.4 Setting Object Size

There are various ways to set a selected object's dimensions:

Figure 13

- Set the object's size along the **X**, **Y**, and **Z** axes via the Size section as shown in *Figure 13*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.
- An axis value can be entered directly by pressing .
- The object's size can be quickly scaled via the **Scale** button.
- Press **Default** to return the object to its original size values.

2.1.5 Assigning Objects to a Layer

To assign selected objects to a layer, press the **Layer** button *(see* [12] *in Figure 10),* then select the desired layer number. Layers can be named via the **Rename** button in the **Layer** pop-up window. Note that layers can be useful when working with large groups of objects.

Note: For using DMX controlled moving objects (Dynamic Layers), see *Section 2.2.6.*

2.1.6 Patching Objects to DMX (LED Surfaces, Video Screens etc.)

3D objects can have their individual color levels controlled by DMX (3 channel RGB; each channel includes the object's diffuse, specular and emissive components). Some examples are LED surfaces, video screens, practical lamps, pyro, etc.

Note: Diffuse, specular and emissive components are set via the **Material Editor**, *see Section 2.3.2 for more information*.

Objects can be patched to the DMX Input or DMX Output *(see* [13] *in Figure 10):* An object is patched to the DMX input in order to be controlled by a console while using Visualization Only mode. An object is patched to the DMX output while using Full Processing mode. Once patched, the object's DMX address appears in the **Room Object List** *(see* [3] *in Figure 10).*

Note: There are two ways to simulate LED objects in LightConverse: The first method is by controlling the RGB levels of a surface as described above, the second method is by using an actual LED fixture (selected via the DMX Setup screen, *see Chapter 3).*

Note: For patching Dynamic Layers to DMX, see *Section 2.2.6.*

2.1.7 Centering the view on an Object

To center the camera view on an object, select the object, then press the **Center** button *(see* [7] *in Figure 10).* [Hot Key = Space]

2.1.8 Setting the 3D World Center

A selected object can be set as a zero reference (0(X),0(Y),0(Z)) in the 3D world by pressing the **World Center** button *(see* [10] *in Figure 10).* This may be used, for example, to make a stage a zero reference from which all measurements are made. The default World Center location is directly in the center of the room.

Note: When an object is set as the World Center, its number in the Room Object list will turn yellow

.

2.1.9 Imperial or Metric Measurement

Press the **Imperial** or **Metric** buttons to alternate between units of measurement *(see* [8] *in Figure 10).*

2.2 Example Tutorials

In this tutorial, we will start a new design by setting the room size and selecting material for the floor, ceiling, and walls. Next, we will add a stage, trussing and screen. Before beginning this tutorial, *see Section 2.1.*

2.2.1 Set Room Size

The room area can be virtually unlimited as there are no limitations on size. However, it is recommended to stay below 100 meters in each dimension (Width, Length and Height) as it may become somewhat harder to navigate such large areas.

Figure 14

The room size is set via the **Room Size** section as shown in *Figure 14*.

- For small decrements or increments, click the left or right arrows.
- For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.

1. For this example tutorial, set the room size to 30m(W) x 20m(L) x 10m(H).

2.2.2 Select Room Floor, Ceiling and Wall Materials

Note: The following methods are used to apply material to all objects, not just the floors, ceilings, and walls.

1. Select the floor to apply the material to *(see Section 2.1.1 for object selection methods).*
2. Press the **Material** button *(see* [9] *in Figure 10)* to the open the **Material Editor**. [Hot Key = Ctrl+M] *(For more information on the Material Editor, see Section 2.3.2.)*
3. Press the Browse button *(see* [1] *in Figure 15 below)* to open the **Material Library**:

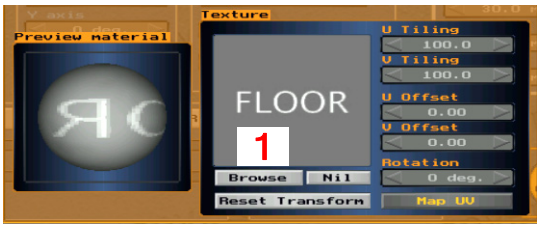


Figure 15

4. Select the material category and material:

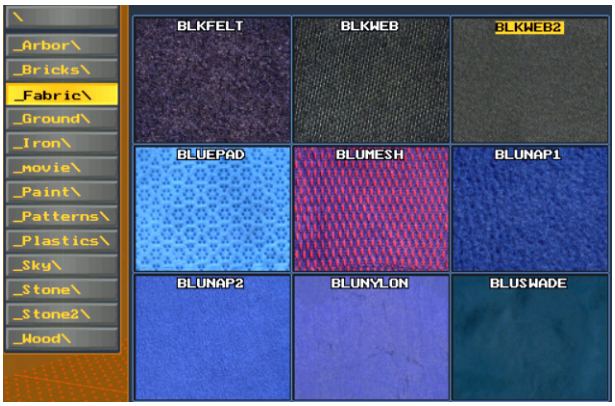


Figure 16

In this example, the BLKWEB2 material has been selected.

5. Repeat steps 1 - 4 for the ceiling and walls using a material of your choice.

TIP! To quickly copy a material from one object to another object or multiple objects, first select the object with the desired material, then select the remaining object(s). Next, press the **SYNCHRONIZE** button *(see* [9] *in Figure 10).*

2.2.3 Add, Resize, and Position a Stage

In the following example, we will show how to add a stage using a primitive 3D cube from the **3D Model Library**. The cube will be resized and positioned to resemble a stage. (Other methods for adding a stage include using stage-deck from the 3D Model Library or importing a pre-designed scene that includes a stage via the **Scene Import** function *(see Section 2.4 for more information on Import / Export functions).*

Note: The following methods can be applied when adding, resizing, and positioning other objects also.

1. Click on empty object number **1** in the **Room Object List** *(see* [3] *in Figure 10).*

2. Press the **Browse 3D Model** button *(see* [11] *in Figure 10)* to open the 3D Model Library as shown in *Figure 17*. [Hot Key = Ctrl+B].

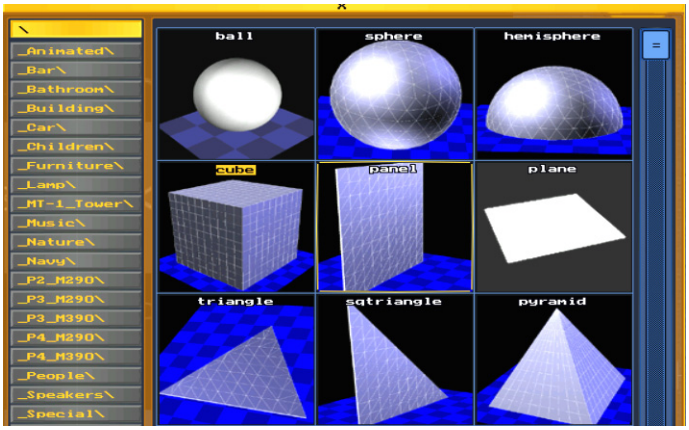


Figure 17

3. From the root directory (\), select **Cube.** The cube will be inserted in the center of the room as shown in *Figure 18*.

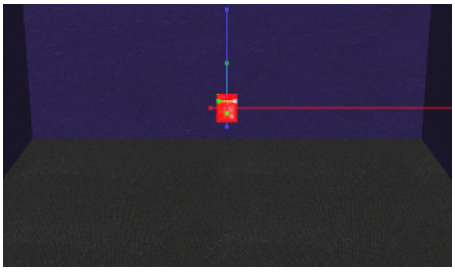


Figure 18

4. Resize the cube as shown below (20.0m X, 10.0m Y, 1.0m Z). *(For more information on setting object size, see Section 2.1.4.)*

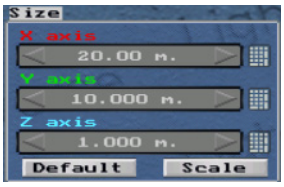


Figure 19

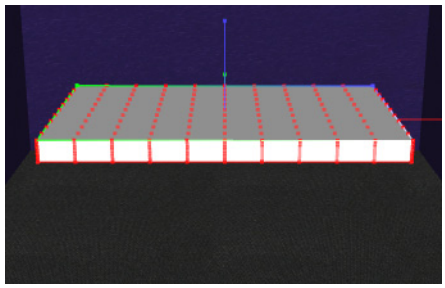


Figure 20

5. Position the stage by setting the coordinate values as shown below (0.0m X, 5.0m Y, 0.5m Altitude). *(For more information on positioning objects, see Section 2.1.2.)*

Figure 21

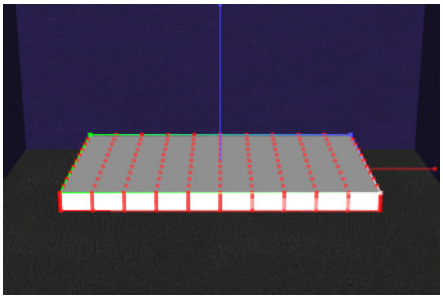


Figure 22

6. Important! Press **World Center** to assign the stage as a zero reference *(see Section 2.1.8).*

2.2.4 Add and Duplicate a Truss

In this example, we will add three sections of 5.0m truss for a total length of 15.0m.

Note: The following methods can be applied when adding and duplicating other objects also.

1. Click on empty object number **2** in the **Room Object List** *(see* [3] *in Figure 10)*.

2. Press the **Browse 3D Model** button *(see* [11] *in Figure 10)* to open the 3D Model Library as shown in *Figure 23*. [Hot Key = Ctrl+B].

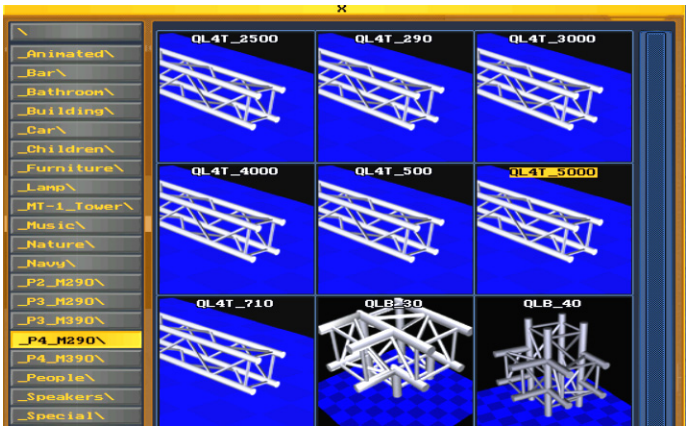


Figure 23

3. From the **P4_M290** directory, select **QL4T_5000.** The truss will be inserted in the center of the stage as shown below.

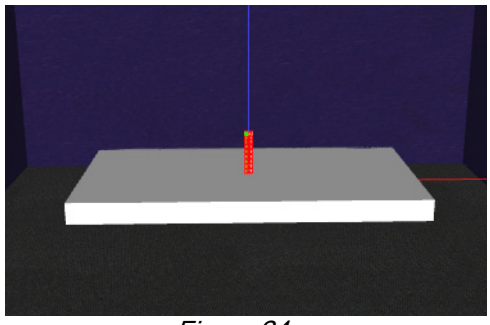


Figure 24

4. Position the truss to an Altitude of 7.0m and rotate the truss 90 degrees on the Z Axis as shown below. *(For more information on positioning and rotating objects, see Sections 2.1.2 - 2.1.3.)*

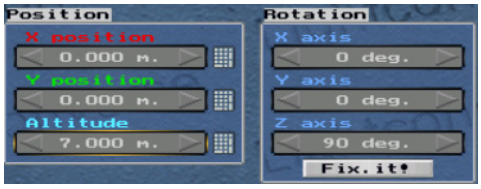


Figure 25

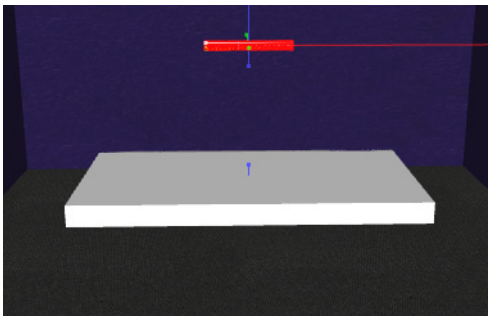


Figure 26

5. Press the **Duplicate** button to create the second truss (the second truss will be inserted in the same position as the first truss). Next, set the X position of the second truss to **-**5.0m as shown below. *(For more information on duplicating and positioning objects, see Sections 2.1.1 - 2.1.2.)*

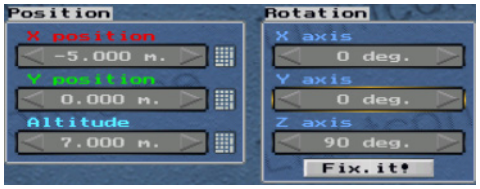


Figure 27

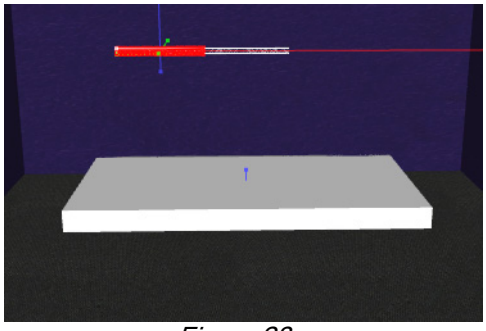


Figure 28

6. Press the **Duplicate** button to create the third truss. Next, set the X position of the third truss to 5.0m as shown below.

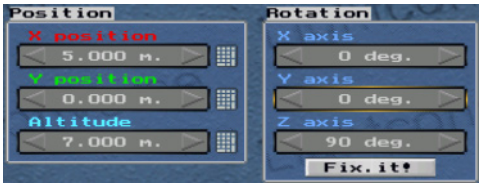


Figure 29

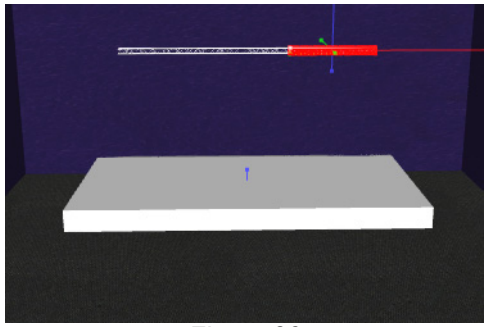


Figure 30

TIP! To position a duplicated object directly opposite the original object, set the duplicated object's position value to the opposite of the original. For example, -5.00m and 5.00m.

7. If you want to duplicate the complete 15m truss you just created, select all three sections, then press the Duplicate button. The new 15m truss can then be moved to a new position of your choice.

2.2.5 Add a Screen and apply an Image

In this example, we will add a screen and apply a image (material) to it.

Note: To apply your own image or video, *see Section 2.4.4 for more information.*

1. Click on empty object number **5** in the **Room Object List** *(see* [3] *in Figure 10).*

2. Press the **Browse 3D Model** button *(see* [11] *in Figure 10)* to open the 3D Model Library as shown in *Figure 31*. [Hot Key = Ctrl+B].

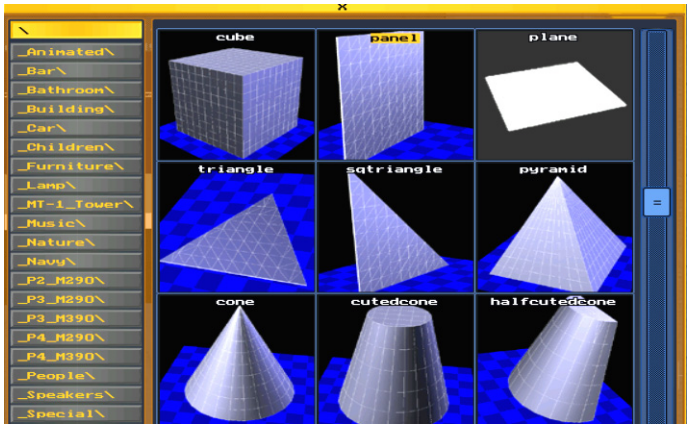


Figure 31

3. From the root directory (\), select **Panel.** The panel will be inserted as shown below.

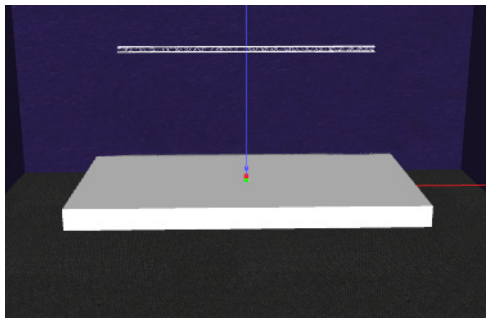


Figure 32

3. Position the screen to an Altitude of 4.50m, rotate the screen 90 degrees on the Y Axis, and set the Size to 0.05m X, 6.0m Y, 4.0m Z as shown below.

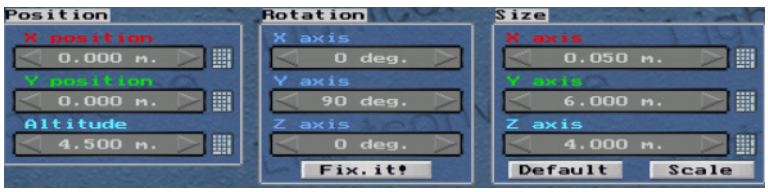


Figure 33

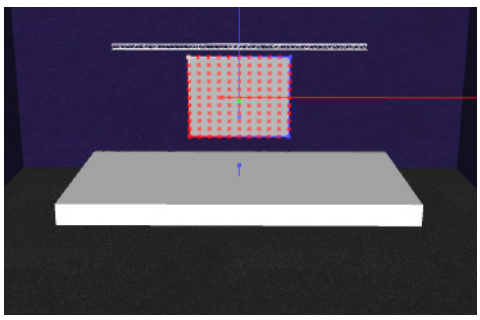


Figure 34

4. Press the **MATERIAL** button *(see* [9] *in Figure 10)* to open the **Material Editor** as shown in *Figure 35*. [Hot Key = Ctrl+M]. *(For more information on the Material Editor, see Section 2.3.2.)*

5. In the **Material Editor**, deselect the **Model Default** button [1], then press the **Browse** button [2] to open the **Material Library**. Next, select an image from the Material Library.

Figure 35

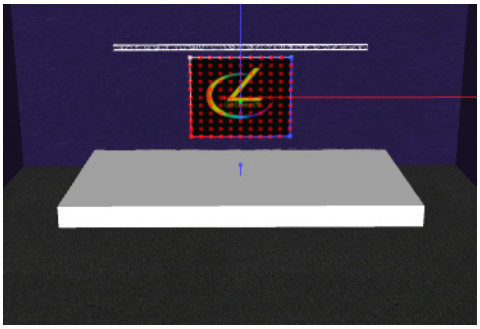


Figure 36

2.2.6 Dynamic Layers Tutorial

Each layer provides two separate positioning, rotation or sizing of objects functions within the layer: **Layer Transformation Pos1** and **Pos2**.

For example, follow the steps below to raise (change altitude position) a truss from point A (DMX level 0) to point B (DMX level 255):

1. Insert truss as usual in the **Room Editor**.
2. Select truss [1] and position (x, y, altitude) [2] as desired (default position). Next, assign truss to a layer (press **Layer** button [3], then select desired layer):

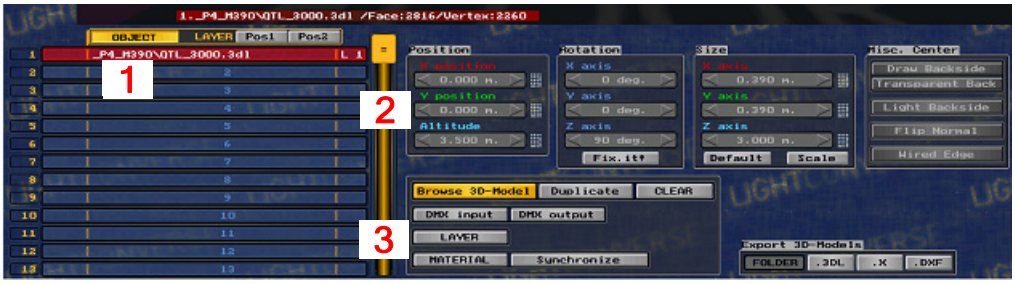


Figure 36a

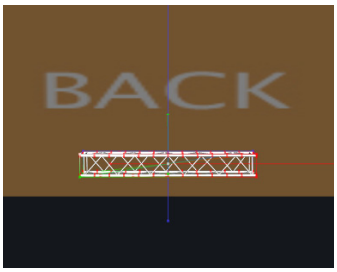


Figure 36b

3. With truss still selected, press the **Pos1** button [4]. Next, position *the Layer* to a new altitude [5]:

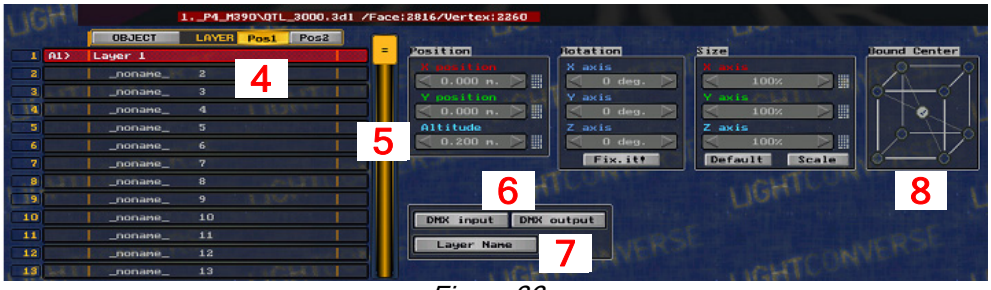


Figure 36c

Figure 36d

4. With the **Pos1** button still pressed, assign a DMX address [6] to the layer.

- If using a console (Visualization Only Mode), press the **DMX Input** button.

- If using the onboard controller (Full Processing Mode), press the **DMX Output** button.

For more information on DMX patching, see *Chapter 3*.

5. Press the **Layer Name** button [7] to give the layer a specific name. The layer can also be named when assigning layers as shown in Step 2 above [3].

6. Pressing **Pos2** instead of **Pos1** will allow for a different transformation. For example, **Pos1** could be truss positioning while **Pos2** could be used for truss rotation (for separate control, assign Pos2 to a different DMX address than Pos1).

7. A layer has its own center [8] from which all transformations are performed**.** Nine possible points are available for selection (**Bound Center**):

Figure 36e

8. Once the layer is assigned a DMX address, the object position (and/or rotation and/or size) can be controlled via DMX. Any value (0-255) of the layer's assigned DMX address can be used, meaning that the object can be placed in any position (between the initial default point and points defined in Layer Transformations Pos1 and Pos2) in separate cues.

Note: If the same object is used in both Pos1 and Pos2, both the Pos1 and Pos2 values and their respective DMX values will affect the object at the same time.
(For example, Position = Default + Pos1* DMX1 / 255 + Pos2 * DMX2 / 255.)

9. If you would like to have fixtures move with the object, just assign the fixtures to the same layer as the object (assigning fixtures to layers is performed in the **DMX Setup Screen** as shown below).
Select fixture(s) [9], then press the **Layer** button [10] and select desired layer:

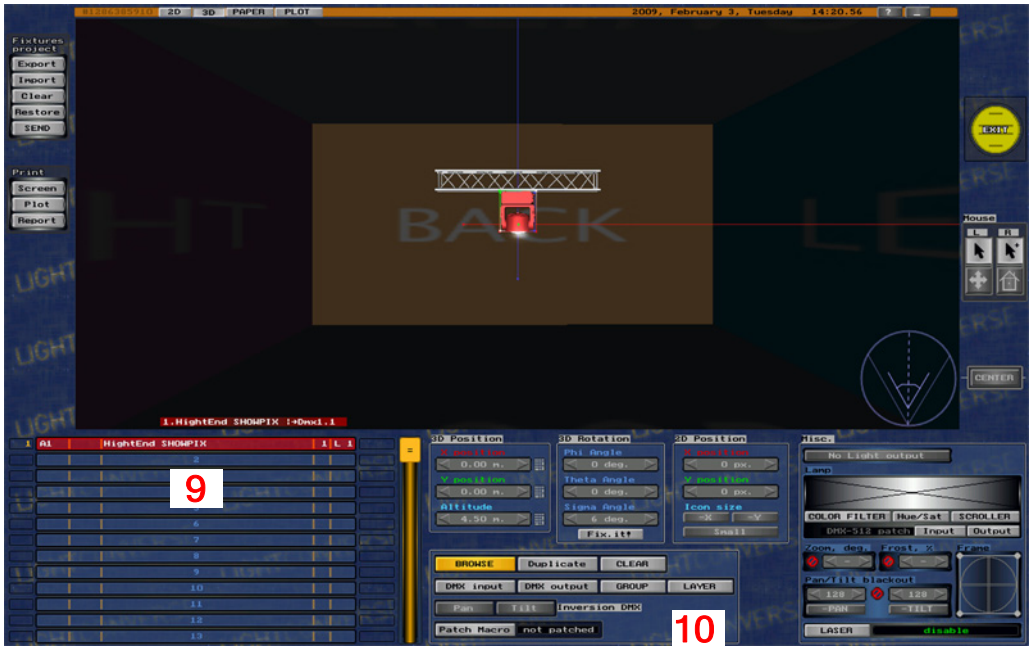


Figure 36f

10. Keep in mind that **layer transformation can be applied to any type of object.** For example, stages, sets, video walls, and even actors can be moved to different positions in different cues.

2.3 3D Object Lighting Fundamentals

2.3.1 Light Calculation Options

Figure 37

LightConverse calculates the lighting of each visible pixel of an object by using Phong calculations. The following options are available for selected objects *(see* [18] *in Fig. 10):*

Draw Backside: Press to draw backside of model. For example, the inside of a cube.

Transparent Back: Press to draw backside of model with a transparency of 56%.

Light Backside: Press to light backside of model with any light (fixture and ambient).

Flip Normal: There is one "normal" vector on each vertex point of a 3D object from which lighting direction reflections point from. Pressing the Flip Normal button selects the opposite direction to allow lighting reflections from the corresponding vertex point on the surface backside.

Wired Edge: Press to boost the object's contrast ratio.

2.3.2 Material Editor

Figure 38

The **Material Editor** allows for each 3D object to have its own surface material or texture. To open the Material Editor, select the object, then press the **Material** button *(see* [9] *in Figure 10).* [Hot Key = Ctrl+M].

Deselect the **Model Default** button [1] so that you can choose a material. To select a material, press the **Browse** [2] button to open the Material Library. To remove a material, press the **Nil** button [3].

Select the object's **Diffuse** color [4] by using the **Color Picker**. To adjust the object's general color intensity, adjust the **Level** regulator. Note that if you plan to superimpose texture on the object, then the Color Picker should be set to white and the Level regulator set to its maximum level.

To adjust the object's **Diffuse** transparency [4], press the **Alpha** button. Adjust the **Level** regulator to set transparency (note that using very large transparent objects is not recommended, as it can cause incorrect beam rendering and loss of speed).

Note: When an object's RGB material is controlled by DMX *(see Section 2.1.6)*, the following conditions apply:
Alpha Off: Color = Diffuse + Specular + DMX * Emissive (levels).
Alpha On: Color = DMX * (Diffuse + Specular + Emissive) (levels).

To adjust the object's **Specular** (shininess) degree [5], adjust the **Glossy** and **Level** regulators. The **Color Picker** can be used to further refine the surface with a specific color.

Note: The Diffuse and Specular components of a material govern how the material physically responds to light. The Diffuse component controls how light is reflected from the surface in all directions. The Specular component controls reflection to the camera's objective only. Glossy controls how large the camera's objective is. The Specular reflection is shown on the **Preview Material** ball [6].

To adjust the object's **Emissive** (internal glow) degree and color [7], adjust the **Level** and **Color Picker** regulators. This is useful working with video screens, LED walls, etc.

U and **V** are the texture coordinates of a material and can be adjusted as follows: scaled via **U Tiling** and **V Tiling** [8], shifted via **U Offset** and **V Offset** [9], and revolved via **Rotation** [10]. To return to the original coordinates, press the **Reset Transform** button [11]. To map cube UV texture coordinates, press the **Map UV** button [13].

2.4 Import / Export

2.4.1 Export Multiple 3D Objects as a New Object *(see* [14] *in Figure 10)*

Figure 39

Multiple objects in the venue may be exported as a new object that can be used in a future design.

There are three types of objects that may be exported:

.3DL: Proprietary Light Converse file. A .3DL file can only be exported as a .3DL type file.

.X: DirectX type file. May be exported as a .X, .3DL, or .DXF file.

.DXF: Drawing Interchange Format file. May be exported as a .DXF, 3DL, or .X file.

To export objects as a new object, select them, then press the appropriate Export button (**.3DL**, **.X**, **.DXF**) as shown in *Figure 39* above. Next, name the new object, then press **OK.** The new object will be exported the root directory of the 3D Model Library.

TIP! As you enter the new object file name, you can specify a path to an existing folder inside the root, for example, _bar\mynewfile. A new folder may also be created, for example, _mynewfolder\mynewfile (the new folder name must begin with an "_" underscore).

Note: Before exporting a single object, set it as the World Center (0X, 0Y, 0Altitude). Before exporting multiple objects, set the World Center on the object that you would like to have as the geometrical center. (*See Section 2.1.8 for more information on the World Center.)*

2.4.2 Scene Operations *(see* [15] *in Figure 10)*

Figure 40

Export: A complete room scene may be exported for later use in other projects. To export the room scene, select the required objects, then press the **Export** button. Next, enter a room scene name. [Hot Key = Ctrl+S].

Import: Used to import a previously exported room scene. [Hot Key = Ctrl+L]. Select a empty cell in the **Room Object List** *(see* [3] *in Figure 10)* before importing. All imported objects will automatically be assigned to a new layer named after the imported room scene.

Clear: Press to completely delete all objects in the room (clear project memory). [Hot Key = Ctrl+N].

Restore: Press to restore the project memory (this can also be used to undo all changes made before exiting the room.)

2.4.3 Importing 3D Objects from .DXF and .X Files

3D .DXF and .X files (DirectX files) may be imported for use in your design.

Note: The object files being imported must always be in 3D solid form!

To import a DXF or .X file, copy the file into the Furniture folder where LightConverse was initially installed, for example, C:\LightConverse308\Furniture. (If the .X file has textured materials, then all textures must be copied to a nearby folder with the same name as the .X file. Also, the .X file must link to the textures without a path.)

For the file to be visible in the 3D Model Library, you must also add, in the same folder, a .JPG or .PNG picture file of the object with the same name as the .DXF or .X file (for example, mynewfile.dxf and mynewfile.jpg). If you do not have a picture file, you can copy and rename another .JPG or .PNG file from the Furniture folder that is similar. (Or you can just copy and rename the .DXF or .X file with a .JPG or .PNG extension, this way only the name will show up in the 3D Model Library, not the picture. You will still be able to use the object, however.)

Once you select your new object from 3D Model Library and add it to your design, you may have to adjust its size via the **Scale** function *(see Section 2.1.4, Setting Object Size).*

TIP! For your DXF and .X files, you may want to create a new folder within the Furniture folder, for example, C:\LightConverse308\Furniture_MyDXFfiles (the name of the new folder must begin with an "_" underscore).

As noted above, imported 3D objects must be in solid form. Because LightConverse is a library based software, it is best to import smaller individual objects instead of one large object. For example, if the DXF is a building, import it in sections (i.e., roof, walls, windows, etc.). Once the individual objects are in the library, you can manipulate them as needed (resize, apply textures,. etc.).

Note: Occasionally, your imported DXF may not appear as desired. In this case, please contact us or visit our online user forum at http://lightconverse.net/lc/lc_forum.htm.

2.4.4 Importing Materials and Video Files

Material Files

To import custom material (textures), paste your image file into the Texture folder where LightConverse was initially installed, for example, C:\LightConverse308\Texture. Possible texture formats include .BMP, .DDS, .JPG, .PNG, and .TGA type files.

Note: Textures with DDS, PNG, TGA formats can have alpha information (alpha information defines the transparency of the image, pixel by pixel). LightConverse will show the surface if alpha is >50% only. This make it possible to create a surface with holes in Photoshop and apply it in LightConverse as a texture.

Video Files

To import custom video files, paste your video file into the Texture folder where LightConverse was initially installed, for example, C:\LightConverse308\Texture. Possible video formats include: .AVI, .MOV, .ASF, .MPG, and .MPEG type files. For the file to be visible in the Material Library, you must also add, in the same folder, an image file (for example, a .JPG or .PNG) of the object with the same name as the .AVI file (for example, mynewfile.avi and mynewfile.jpg).

Note: You can also just make a shortcut to the Texture folder from where the video file is located. For example, if the video file is located in another folder or on a separate drive.

Note: To play video, a DirectShow video codec must be installed in your system. Also note that the play video feature is only available with Media and Unlimited versions of LightConverse.

TIP! For your material and video files, you may want to create a new folder within the Texture folder, for example, C:\LightConverse308\Texture_MyVideoFiles (remember to name the new folder with an "_" underscore).

2.4.5 Using Video-In

Up to three live DirectShow video inputs may be used in LightConverse. The video source can be input via FireWire, or via USB from a video capture device. The video signals (from media servers, video cameras, etc.) are then applied to any object as materials.

It is also possible to capture live video sources running on the same computer as LightConverse by using third-party Video Capture drivers (such as VH Screen Capture Driver, www.hmelyoff.com). This could be used, for example, to capture content from a media server (such as Arkaos) running on the same computer.

To apply a video texture to an object:

1. Select the object, then open the **Material Editor** *(see Section 2.3.2).*

2. Press the **Browse** button in the Material Editor, then navigate to the **_movie** folder.

3. Select either the **videoin1**, **videoin2**, or **videoin3** image. (This will map directly to the DirectShow compatible video input in your system.)

Note: The Video-In feature is only available with Media and Unlimited versions of LightConverse.

2.4.6 Using Hippotizer Video

To connect directly with Hippotizer and apply its video signal to an object:

1. Select the object, then open the **Material Editor** *(see Section 2.3.2).*

2. Press the **Browse** button in the Material Editor, then navigate to the **_movie** folder.

3. Select one of the six available Hippo feeds.

Note: A connection with Hippotizer is only available with the Media and Unlimited versions of LightConverse. Connection can be made via EtherNet or WiFi.

2.5 Paperwork

2.5.1 Paper and Plot Modes of View *(see* [16] *in Figure 10)*

Figure 41

Pressing the **Paper** button located at the top of the Room Editor Screen will display the room objects in filled wireframe mode. [Hot Key = F2].

Pressing the **Plot** button will display the room objects in wireframe mode only. [Hot Key = F3].

Tip! Set the **Camera FOV** (field of view) to Zero to obtain a flat, 2D view, which can be suitable for CAD type print outs. [Hot Key = 0] *(For more information on the Camera FOV, see Section 1.5.5.2, Room Menu.)*

Tip! To capture a .JPG screenshot of the view, press the **Print Screen** key on your keyboard. The rendered screenshot will be located in the _ScreenShots folder where LightConverse was initially installed, for example, C:\LightConverse308_ScreenShots. The screenshot can then be copied and emailed to a client for review. *(See Section 1.5.6.1 for more information.)*

2.5.2 Printing Options *(see* [17] *in Figure 10)*

Note: The Vector Output to Printer and Objects Specification Printing Report features as described below are only available with Net-In and above versions of LightConverse.

Figure 42

2.5.2.1 Bitmap Output to Printer (Screen)

Pressing the **Screen** button will send a detailed, high-resolution bitmap output of the view to a printer.

2.5.2.2 Vector Output to Printer (Plot)

Pressing the **Plot** button will send a vector output of the view to a printer. [Hot Key = Ctrl+P]. The objects will printed in wireframe mode only. The objects are printed along with their relevant object numbers as shown in the Objects Specification list *(see Section 2.5.2.3 below)*.

Note: Use Vector Output (Plot) for A3 size and greater formats.

Note: Only the objects in the 3D view will be included. If you want to include all objects, you may have to zoom out.

2.5.2.3 Objects Specification Printing

There are two methods available to print a list of objects used in the room:

1. Pressing the **Report** button will print out a simple list of objects (name and number) used in the room. [Hot Key = Ctrl+I].

Note: Only the objects in the 3D view will be included in the report. If you want to include all objects, you may have to zoom out.

2. A further detailed report (**furniture.txt**) contains a complete list of all room objects (including name, number, size, rotation, and 3D location). This file is located in the Database folder where LightConverse was initially installed, for example, C:\LightConverse308\Database_MyShow.

Note: To print out a list of fixtures used in the room, *see Section 3.12.2.3.*

2.6 Room Editor Hot-Keys

To obtain the following list of available Hot-Keys in the Room Editor, press the button at the top of the screen.

Note: Room Editor Hot-Keys are pre-assigned and many are specific to the Room Editor.

2.6.1 Camera Operations

[Home] Move 3D Camera forward.
[End] Move 3D Camera backward.
[←] Move (Rotate if Ctrl pressed) 3D Camera left.
[→] Move (Rotate if Ctrl pressed) 3D Camera right.
[↑] Move (Rotate if Ctrl pressed) 3D Camera up.
[↓] Move (Rotate if Ctrl pressed) 3D Camera down.
[Space] Focus 3D Camera to selected object's center.

Number Pad:

[1] Set 3D Camera view from front-left.
[2] Set 3D Camera view from front.
[3] Set 3D Camera view from front-right.
[4] Set 3D Camera view from left.
[5] Set 3D Camera view from ceiling.
[6] Set 3D Camera view from right.
[7] Set 3D Camera view from left-back.
[8] Set 3D Camera view from back.
[9] Set 3D Camera view from right-back.
[0] Set 3D Camera field of view (FOV) to zero (2D).
[.] Set 3D Camera field of view (FOV) to normal (3D).

2.6.2 Shortcuts

[F1] Open 3D screen.
[F2] Open Paper screen.
[F3] Open Plot screen.

[PrintScreen] Save screen rendering to file (located in _Screenshots folder).

[PauseBreak] Quit Program.

[PageUp] Set ambient light brighter.
[PageDn] Set ambient light darker.

[Insert] Add object to scene.
[Delete] Delete selected objects.

[Alt] Change tool.

[-] Previous object selection.
[+] Next object selection.
[Enter] Invert one layer objects selection.

[Ctrl+C] Cut.
[Ctrl+V] Paste.
[Ctrl+Z] Undo.
[Ctrl+X] Redo.
[Ctrl+Q] Exit.

[Ctrl+N] Clear current venue project.
[Ctrl+S] Export selected objects to project file.
[Ctrl+L] Import selected objects from project file.
[Ctrl+G] Assign selected objects to layer.

[Ctrl+D] Duplicate selected objects.

[Ctrl+I] Print visible objects' specifications.
[Ctrl+P] Print visible objects' plot.

[Ctrl+B] Open object's browser window.
[Ctrl+M] Open object's material window.
[Ctrl+R] Open object's rotation window.

2.6.3 Using Room Editor Hot-Keys in FullScreen

All of the above Hot-Key operations can be used in FullScreen.

To switch to FullScreen, select **FullScreen** from the **Room Menu**. Select **Desktop** to return to Desktop.
(For information on the Room Menu, see Section 1.5.5.2.)

You can also press [Tab] to switch to FullScreen. Press again to return to Desktop.

Chapter 3: Adding Fixtures to your Show

This chapter covers the following topics:

- *3.1 Getting Started*
- *3.2 Choosing Fixtures Drivers*
- *3.3 Fixture Constructor*
  - *3.3.1 Editing Fixture Drivers*
  - *3.3.2 Building new Fixture Drivers*
  - *3.3.3 Fixture Constructor Fundamentals*
- *3.3.3.1 DMX Channel Destination*
- *3.3.3.2 Editing DMX Channel Tables*
- *3.3.3.3 Editing DMX Channel Faders*
- *3.3.3.4 Other Fixture Properties*
- *3.3.3.5 Icon Coordinates and 3D Preview*
- *3.4 Selecting, Duplicating, and Deleting Fixtures*
- *3.5 3D View*
  - *3.5.1 3D Fixture Position*
  - *3.5.2 3D Fixture Rotation*
- *3.6 2D View*
  - *3.6.1 2D Icon Position*
  - *3.6.2 2D Icon Direction and Size*
- *3.7 Assigning Fixtures to Groups and Layers*
  - *3.7.1 Assigning to Groups*
  - *3.7.2 Assigning to Layers*
- *3.8 Other Fixture Options*
  - *3.8.1 Color Filters*
  - *3.8.2 Zoom and Frost*
  - *3.8.3 Pan / Tilt Default*
  - *3.8.4 Color Scrollers*
  - *3.8.5 Color Scroller Patching*
  - *3.8.6 Adjusting Shutters*
  - *3.8.7 Assigning Lasers*
- *3.9 Patching Fixtures*
  - *3.9.1 Patch DMX Input*
  - *3.9.2 Patch DMX Output*
  - *3.9.3 Patch Macro*
  - *3.9.4 Invert Pan / Tilt Directions*
- *3.10 Patch Camera to DMX*
- *3.11 Import / Export*
  - *3.11.1 Fixtures Project*
- *3.12 Paperwork*
  - *3.12.1 Paper and Plot Modes of View*
  - *3.12.2 Printing Options*
- *3.12.2.1 Bitmap Output to Printer (Screen)*
- *3.12.2.2 Vector Output to Printer (Plot)*
- *3.12.2.3 Fixtures Specification Printing*
- *3.13 DMX Setup Screen Hot-Keys*
  - *3.13.1 Camera Operations*
  - *3.13.2 Shortcuts*
  - *3.13.3 Using DMX Setup Screen Hot-Keys in FullScreen mode*

3.1 Getting Started

Figure 43

After designing your new venue as described in Chapter 2, select **DMX** [1] from the **Setup Menu** in the **Main Screen** to open the **DMX Setup Screen**.

If you are using the example tutorial from Section 2.2, the **DMX Setup Screen** will open as shown below in *Figure 44,* otherwise, it will open the DMX Setup Screen of the database folder you are currently working in *(see Section 1.5.4 for more information)*.

TIP! Many of the operations in the DMX Setup Screen can be quickly executed via Hot-Keys. This will be indicated in this chapter as, for example, [Hot Key = Delete]. *(See Section 3.13 for more information on DMX Setup Screen Hot-Keys.)*

Figure 44

3.2 Choosing Fixture Drivers

Figure 45

To add a fixture to your show, click on an empty fixture number in the **User Fixture List** *(see* [1] *in Figure 44).*

Next, choose a fixture profile or "**Fixture Driver**" by pressing the **Browse Driver** button *(see* [2] *in Figure 44)* [Hot Key = Insert]. This will open up the **Fixture Drivers List** as shown in *Figure 45*. The list is divided by type (MovingHead, Scanner, etc.) In this example, a Martin MAC 500(DMXmode 4) has been chosen from the MovingHead category.

Press the **Apply** button [1] once you have made your choice. The fixture will be inserted in the center of the room in the 3D View and in the top left of screen in the 2D View. *(To position the fixture, see Sections 3.5.1 And 3.6.1)*

Note: If the Fixture Drivers List does not contain your fixture please contact us *(see Section 1.4)*. You can also build your own fixture driver by using the Fixture Constructor *(see Section 3.3)*.

3.3 Fixture Constructor

Figure 46

With the Fixture Constructor, it is possible to edit a current fixture driver or build a new fixture driver. This could be necessary if your fixture has a new feature or mode that does not match the current fixture driver in the library, or if the fixture driver is not included in the library. Fixture drivers can also be built quickly by LightConverse. If you need a new fixture driver, please contact us *(see Section 1.4)*.

3.3.1 Editing Fixture Drivers

1. Press **Browse Driver** *(see* [2] *in Figure 44),* then select driver from the **Fixture Driver List** *(see Figure 45)*.
2. Press **Constructor** *(see* [2] *in Figure 45)* to open the **Fixture Constructor**.
3. Edit the fixture driver *(see Fixture Constructor Fundamentals, Section 3.3.3).*
4. Press the **Save and Exit** button *(see* [2] *in Figure 46)* in the **Fixture Constructo**r.

It is also possible to make a new version of a Fixture Driver while keeping the old one:

1. Press **Browse Driver** *(see* [2] *in Figure 44)* then select driver from the **Fixture Driver List** *(see Figure 45)*.
2. Press **Copy** *(see* [3] *in Figure 45)*.
3. Select an empty line in the **Fixture Driver List**, then press **Paste** *(see* [3] *in Figure 45)*.
4. Press Constructor *(see* [2] *in Figure 45)* to open the Fixture Constructor.
5. Press the Rename button *(see* [1] *in Figure 46)* in the Fixture Constructor to enter a new driver name.
6. Edit the fixture driver *(see Fixture Constructor Fundamentals, Section 3.3.3).*
7. Press the Save and Exit button *(see* [2] *in Figure 46)* in the Fixture Constructor.

3.3.2 Building new Fixture Drivers

1. Press **Browse Driver** *(see* [2] *in Fig. 44),* then select an empty line in the **Fixture Driver List** *(see Fig. 45).*
2. Press Constructor *(see* [2] *in Figure 45)* to open the Fixture Constructor.
3. Press the Rename button *(see* [1] *in Figure 46)* in the Fixture Constructor to enter a new driver name.
4. Edit the fixture driver *(see Fixture Constructor Fundamentals, Section 3.3.3).*
5. Press the Save and Exit button *(see* [2] *in Figure 46)* in the Fixture Constructor.

3.3.3 Fixture Constructor Fundamentals

This section only explains some basic fundamentals and gives a few examples of using the **Fixture Constructor**. Please contact us if you need further information.

3.3.3.1 DMX Channel Destination

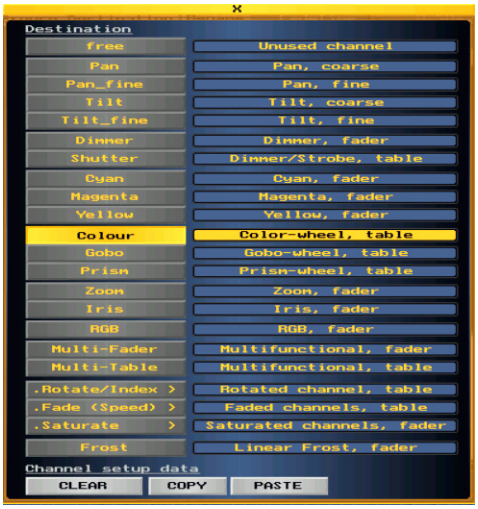


Figure 47

A fixture driver is composed of up to 32 DMX channels with each channel assigned a "**Destination**" (parameter type) such as Pan, Tilt, Dimmer, Color Wheel, etc.

To add a channel to a fixture driver, select the desired DMX channel number *(see* [3] *in Figure 46),* then press the **Destination** button *(see* [4] *in Figure 46)*. This will open up a list from which you can select the channel's destination type as shown in *Figure 47*.

A destination type can have one function, for example, a Dimmer Fader, or it can have many functions, for example, a color wheel with multiple colors (which are defined in a Channel DMX Table). Editing faders and tables are explained further below in *Sections 3.3.3.2 and 3.3.3.3*.

Note: Different destination types will display different functions and options.

3.3.3.2 Editing Channel DMX Tables

Figure 48

Different editing options particular to each destination type will be displayed when a function is selected in the **Channel DMX Table** [1], i.e., selecting Shutter will provide shutter speed options, selecting Prism will provide prism rotation options, etc.

For example, selecting a destination type with a color wheel will display the color wheel's functions listed in the **Channel DMX Table** as shown in *Figure 48*.

To add or edit a function in the **Channel DMX Table**, left-click its line, then browse the function categories [2] to select a function icon. In this example, color 117 has been chosen.

To set the function's DMX value and give it a name, right-click its line in the **Channel DMX Table**, or press the **DMX** [3] and **Rename** [4] buttons.

To set a function as a default, select its line, then press the **B/O** button [5]. Note that this applies only while in Full Processing mode (in Visualization Only mode the default DMX values are sent from the console).

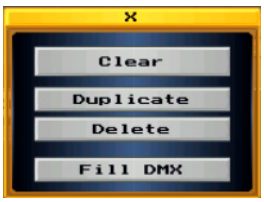


Figure 49

Pressing the **Menu** button [6] will display options used while editing lines in the **Channel DMX Table**.

Clear, **Duplicate**, and **Delete** are self-explanatory.

Fill DMX is used to automatically fill the **Channel DMX Table** from the default (**B/O**) line to the selected line.

3.3.3.3 Editing DMX Channel Faders

Figure 50

Different editing options particular to each destination type will be displayed its channel is selected, i.e., selecting Zoom will provide zoom degree options, etc.

For example, selecting a Dimmer Fader destination type will display the faders's functions as shown in *Figure 50*.

Two functions are common to all faders; **Inversion** [1] and **Blackout** [2].

Pressing **Inversion** will invert the DMX channel level (255-0 instead of 0-255).

Adjusting the **Blackout** regulator will set the channel's default level. Note that this applies only while in Full Processing mode (in Visualization Only mode the default DMX values are sent from the console).

Note: Remember, different destination types will display different functions and options.

3.3.3.4 Other Fixture Properties *(see* [5] *in Figure 46)*

Figure 51

Besides parameters, various other properties of the fixture driver may be edited also, including its **2D Icon** and **FootPrint** type.

Note: After selecting a 2D icon, a 3D representation will be automatically generated by the software.

Adjusting photometric data (**Lux at 5 meters**), and **Max degree** angle (field or maximum zoom) will give the fixture's **Lumen** output.

3.3.3.5 Icon XY Coordinates and 3D Preview *(See* [6] *in Figure 46)*

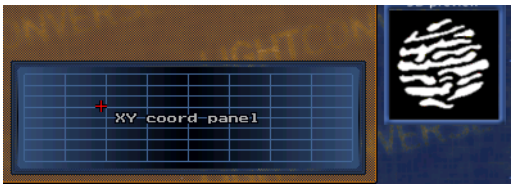


Figure 52

The **XY** Coordinate panel is used to place parameter icons in the Fixture Functions window *(See* [7] *in Figure 46)*.

The **3D Preview** shows the result of adjusting parameters in the Fixture Functions window.

3.4 Selecting, Duplicating, and Deleting Fixtures

Selecting

- To select a fixture, click on it in the **2D** or **3D** View of the **DMX Setup Screen** *(see Figure 44)*. Fixtures may also be selected in the **User Fixture List** *(see* [1] *in Figure 44)*. [Hot Keys = **-** (previous) and **+** (next)].
- Multiple fixture selections can be made by holding down the **Ctrl** key while left-clicking fixtures. Multiple fixtures may also be selected by simply right-clicking the fixtures.
- Double left-clicking a fixture will select all same-type fixtures in a Group *(for more information, see Section 3.7, Assigning Fixtures to a Group).*

Duplicating

- To duplicate a fixture, select it, then press the **Duplicate** button *(see* [3] *in Figure 44)*. The new fixture will appear in the same position as the original, ready to be repositioned. [Hot Keys = **Ctrl+D**].

Note: Don't forget to reposition the duplicated fixture! *(See Sections 3.5.1 And 3.6.1.)*

Deleting

- To delete a fixture, select it, then press the **Clear** button *(see* [4] *in Figure 44)*. [Hot Key = Delete].

Note: The **Left Mouse** button tool functions *(see [5] in Figure 44)* include fixture selection and fixture positioning . [Hot Key = Alt]. (For more information on positioning a fixture, *Sections 3.5.1 And 3.6.1.)*

Note: The **Right Mouse** button tool functions *(see [6] in Figure 44)* include fixture selection and fixture rotation . *(For more information on rotating a fixture, see Section 3.5.2.)*

3.5 3D View

To open the **3D View**, press the **3D** button at the top of the **DMX Setup Screen** *(see* [7] *in Figure 44)*.

3.5.1 3D Fixture Position

There are various ways to position selected fixtures:

- Press the button *(see* [5] *in Figure 44)*. The fixtures can then be dragged with the mouse in a secant plane.

Figure 53

- Set the fixtures's **X**, **Y**, and **Altitude** coordinate values via the 3D Position section as shown in *Figure 53*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.
- A coordinate value can be entered directly by pressing . (One arithmetic operation is allowed (+, -, *, /), for example, 2.50+1.25. This is useful to shift the fixture after duplicating. If multiple fixtures are selected, the operation will be applied to each of them separately.

- **TIP!** To position a duplicated fixture directly opposite the original fixture, set the duplicated fixture's position value to the opposite of the original. For example, **-**5.00m and 5.00m.

3.5.2 3D Fixture Rotation

There are various ways to rotate selected fixtures:

- Press the button *(see* [6] *in Figure 44)*. The Phi and Theta rotation angles can then be adjusted by clicking or dragging with the right mouse button. This method can also be used to focus fixed fixtures such as ellipsoidals.

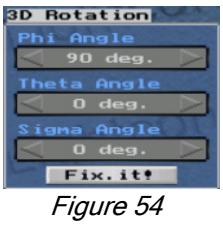


Figure 54

- Adjust the fixture's Phi, Theta, and Sigma rotation angles via the **3D Rotation** section as shown in *Figure 54*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may be used also.
- The fixture's 3D rotation angles can be quickly set via the **Fix.-it!** button. [Hot Key = Ctrl+R].

3.6 2D View

To open the **2D View**, press the **2D** button at the top of the **DMX Setup Screen** *(see* [7] *in Figure 44)*.

The 2D view shows picture icons of the fixtures. It may be used as a simple way to view the fixture layout. All functions (such as selecting, duplicating, deleting, and patching fixtures, etc.) may be performed here also.

3.6.1 2D Icon Position

There are various ways to position selected icons:

- Press the button *(see* [5] *in Figure 44)*. The icons can then be dragged while holding down the left mouse button.

Figure 55

- Set the icons's **X** and **Y** pixel position values via the **2D Position** section as shown in *Figure 55*. For small decrements or increments, click the left or right arrows. For larger decrements or increments, click and hold the left or right mouse keys while dragging the mouse. The mouse scroll wheel may also be used.

3.6.2 2D Icon Direction and Size

An icon's **X** and **Y** directions can be reversed by pressing their respective buttons as shown in *Figure 55*.

An icon's size may be made smaller in order to fit more icons in the view, for example, with a show with many fixtures. Press the **Small** button as shown in *Figure 55*.

3.7 Assigning Fixtures to Groups and Layers

3.7.1 Assigning Fixtures to Groups

Figure 56

To assign fixtures to a group, select the fixtures, then press the **Group** button *(see* [8] *in Figure 44)*.

Next, select the desired group number (1-12) from the group pop-up window as shown in *Figure 56*.

To apply the change, simply close the group pop-up window.

To name the group, press the **Rename** button in the group pop-up window.

Groups being used are indicated as "Busy", groups not being used are indicated as "Free".

Note: A fixture can be assigned to one group only, it is impossible to assign a fixture to several groups at the same time.

Note: Assigning fixtures to groups is only necessary when using Full Processing mode *(see Groups, Section 4.6)*. However, it can be used as a method to select large groups of specific fixtures while in Visualization Only mode. Also, the group name or number will appear in the fixture specification print-out *(see Section 3.12.2.3)*.

3.7.1 Assigning Fixtures to Layers

To assign selected fixtures to a layer, press the **Layer** button *(see* [8] *in Figure 44)*, then select the desired layer number. Layers can be named via the **Rename** button in the **Layer** pop-up window. Note that layers can be useful when working with large groups of fixtures.

Note: For patching Dynamic Layers to DMX, see *Section 2.2.6*.

3.8 Other Fixture Options

Figure 57

The **Miscellaneous** (Misc.) section *(see* [9] *in Figure 44)* provides for selection and adjustment of various fixture attributes as explained below.

3.8.1 Color Filters

Press the **Color Filter** button to add a color filter to a selected conventional fixture such as an ellipsoidal. Roscolux, Lee and Apollo libraries are provided.

Alternatively, you can adjust the color hue and saturation levels manually by pressing the **Hue/Sat** button. Press **Apply** after your selection.

The selected color will be shown next to the fixture in the User Fixture List:

1 A1 ETC Source Four 26Deg 1
2 A2 ETC Source Four 26Deg 1
3 A3 ETC Source Four 26Deg 1
4 A4 ETC Source Four 26Deg 1
5 A5 ETC Source Four 26Deg 1
6 A6 ETC Source Four 26Deg 1
7 A7 ETC Source Four 26Deg 1
8 A8 ETC Source Four 26Deg 1
9 A9 ETC Source Four 26Deg 1
10 A10 ETC Source Four 26Deg 1

Figure 57a

3.8.2 Zoom and Frost

For conventional zoom fixtures, such as a zoom ellipsoidal, you can adjust the **Zoom** degree. It is also possible to adjust the **Frost** degree.

Note: On moving light fixtures with zoom and frost parameters, these parameters are already defined via the Fixture Constructor. If you unmute these parameters in the Misc. section, the moving light zoom and frost parameters will not properly respond to commands from a console (Visualization Only mode) or while in Full Processing mode.

3.8.3 Pan / Tilt Default *(Full Processing mode only)*

The pan and tilt blackout (default) values for selected moving light fixtures may be set (*see Figure 57).* Making changes here will affect the fixtures' pan and tilt default values in the Fixture Functions window *(see Section 4.3.2.).*

The default state of the pan and tilt Invert buttons in the Fixture Functions window may also be set.

Note: Pan and Tilt default values only apply when in Full Processing mode. In Visualization Only mode the default DMX values are sent from the console.

3.8.4 Color Scrollers

An assortment of scroller manufacturer color strings may be selected and customized or you can build your own. Pressing the **Scroller** button will open up the following screen:

Note: If you want apply the string to a fixture, make sure the fixture is selected in the User Fixture List.

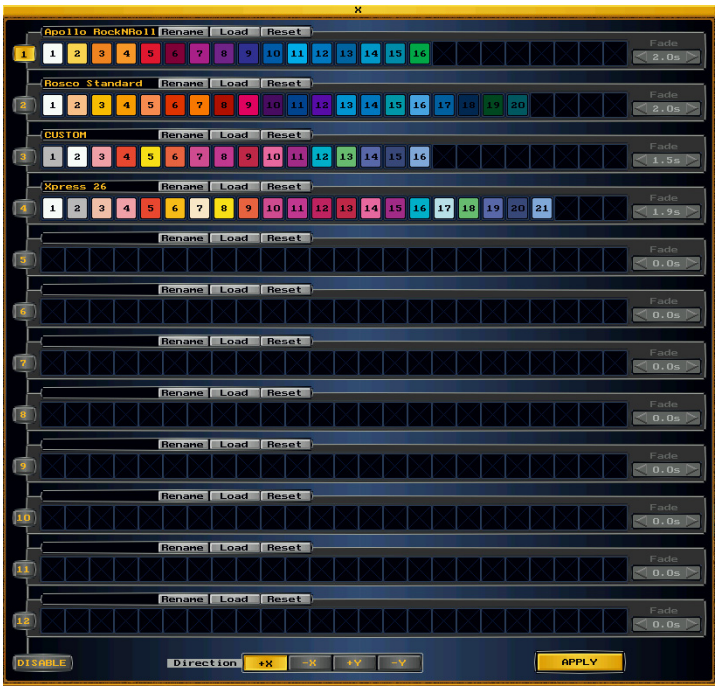


Figure 57b

To select a manufacturer scroller string, press a scroller number then press **Load**. A pop-up list of available strings will appear.

To customize a manufacturer scroller string, press a scroller number then select a frame number to open up the color filter list from which you can make your filter choice.

To build your own scroller string, press a scroller number, then select a frame number to open up the color filter list from which you can make your filter choice.

The horizontal or vertical direction of the string can be selected via the **+X**, **-X**, **+Y**, **-Y** buttons.

To name or clear the scroller string, press the **Rename** and **Reset** buttons respectively.

To remove the scroller string from a selected fixture the select the string and press **Disable**.

Note: Make sure to press **Apply** after making any changes.

3.8.5 Color Scroller Patching

To assign a scroller to a dimmer channel, select a fixture, then press the DMX-512 **Input** or **Output** patch buttons in the Misc. screen.

In the below example, fixture 14 is patched to DMX input address A14 while its scroller is patched to DMX input address A15:

Figure 57c

Note: For more information on patching, see *Section 3.9* below.

3.8.6 Adjusting Shutters

Figure 57d

To apply shutter cuts to a selected fixture, drag shutter angles via the Frame section.

3.8.7 Assigning Lasers

Press the **Laser** button to assign selected laser fixtures to incoming Ethernet data from Pangolin laser software (www.pangolin.com). (A generic laser fixture is located in the Fixed folder of the Fixtures Drivers List, *see Figure 45.)*

If Pangolin and LightConverse are running on different computers, an Ethernet cable will be required. If Pangolin and LightConverse are running on the same computer, you will have to install a Microsoft Loopback Adapter unless you are connected to an active network. For information on the Loopback Adapter, please see http://support.microsoft.com/kb/839013.

For an example of using Pangolin and LightConverse together, a Pangolin player is provided with the LightConverse installation. To start the player, select "Pangolin LC Player" from Windows Start Menu / Programs / LightConverse, or run "LCPlay.exe" in the folder in which LightConverse was installed (default is C:\LightConverse308\LCPlay.exe). Next, press Open in the LC Player and select the "Eternity_30FPS.lds" sample file (located in LightConverse308 folder). Remember to first assign selected laser fixtures and install a Microsoft Loopback Adapter if not connected to a network.

Note: Laser functionality is only available with the Media and Unlimited versions of LightConverse.

.

3.9 Patching Fixtures

3.9.1 Patch DMX Input

Figure 58

The **DMX Input** patch is normally used while in Visualization Only mode. However, the Input patch may also be used in Full Processing mode, for example, when LightConverse is being used to control actual fixtures and there is a DMX signal being passed through *(see DMX Input Track, Section 4.5.1)*.

1. To patch the **Dmx Input** addresses of fixtures, select the fixtures, then press the **DMX 512 Input** button *(see* [10] *in Figure 44).*

2. Next, select the desired port input number [1].

Up to 16 ports may be used: DMX (DMX1 - DMX16), Art-Net (Net0 - Net255), sACN (ACN1 - ACN255), Avolites (ACDI1 - ACDI255), HIgh End HogPC (Hog1 - Hog255).

Figure 59

3. To change a port's Universe type and number, press the Universe button [2]. A pop-up window will appear as shown in *Figure 59*.

4.Press Apply [4] if only changing port type or number for selected fixtures and not DMX addresses.

5. To **automatically** assign **multiple** addresses, press **Auto DMX** [3], then press **Apply** [4].

6. To **manually** assign **individual** addresses, select the desired start address number, then press **Apply** [4].

7. To clear addresses, press the Disable button [5], then press Apply [4].

8. To give a port a unique name, press the Rename button [6], then press Apply [4].

Note: To view all addresses, use the scroll bar [7] or mouse scroll wheel. If an address is already in use, the address number will be displayed in red, for example, 1.

ArtNet Configuration: No special configuration for ArtNet is required as LightConverse supports ArtNet (I & II) in native mode. However, make sure that your patching and cable connections are correct.

Setting IP Address: Please set your computer's IP address to a different address than your console but in the same range and subnetwork, for example:

Computer: IP Address 2.0.0.1, Subnet Mask 255.0.0.0.

Console: IP Address 2.0.0.2, Subnet Mask 255.0.0.0.

Hog3/Hog3PC Direct Connection: For more information on establishing a direct connection with Hog3/Hog3PC, please see the Hog 3 Direct Connection guide at http://www.lightconverse.net/lc/download-l.htm.

3.9.2 Patch DMX Output

Figure 60

The **DMX Output** patch is normally used while in Full Processing mode. However, the output patch may also be used in Visualization Only mode, for example, when LightConverse is being used as a preview between a control console and the actual fixtures.

1. To patch the **DMX Output** addresses of fixtures, select the fixtures, then press the **DMX 512 Output** button *(see* [10] *in Figure 44).*

2. Select the desired port output number [1].

Up to 16 ports may be used: DMX (DMX1 - DMX16) or Art-Net (Net0 - Net255).

Note: sACN (ACN1 - ACN255), Avolites (ACDI1 - ACDI255), and HIgh End HogPC (Hog1 - Hog255) is not used for DMX output.

Figure 61

3. To change a port's Universe type and number, press the Universe button [2]. A pop-up window will appear as shown in *Figure 61*.

4.Press **Apply** [4] if only changing port type or number for selected fixtures and not DMX addresses.

5. To **automatically** assign **multiple** addresses, press **Auto DMX** [3], then press **Apply** [4].

6. To **manually** assign **individual** addresses, select the desired start address number, then press **Apply** [4].

7. To clear addresses, press the Disable button [5], then press **Apply** [4].

8. To give a port a unique name, press the Rename button [6], then press **Apply** [4].

Note: To view all addresses, use the scroll bar [7] or mouse scroll wheel.

Note: If an address is already in use, the address number will be displayed in red, for example, 1.

ArtNet Configuration: No special configuration for ArtNet is required as LightConverse supports ArtNet (I & II) in native mode. However, make sure that your patching and cable connections are correct.

Setting IP Address: Please set your computer's IP address to a different address than your console but in the same range and subnetwork, for example:

Computer: IP Address 2.0.0.1, Subnet Mask 255.0.0.0.

Console: IP Address 2.0.0.2, Subnet Mask 255.0.0.0.

3.9.3 Patch Macro

The **Patch Macro** *(see* [11] *in Figure 44)* allows for a channel to be controlled by another channel. A channel can be set to "**Read**" from or "**Master**" to another channel.

As a simple example, when using 6 conventional fixtures, such as ellipsoidals, you may want all 6 fixtures to be controlled by a single channel. This could be accomplished by assigning the channels of fixtures 2 - 6 to the channel of fixture 1 (fixtures 2 - 6 would "**Read**" the channel data from fixture 1).

Follow the short procedure below to understand steps necessary in the above example:

Figure 62

1. Select Fixtures 2 - 6.
2. Press **Patch Macro** button *(see* [11] *in Figure 44)*.
3. Press **Read** button [1] as shown in *Figure 62* above.
4. In the **Patch from fixture** section [2], select the fixture to be read from. In this case, Fixture 1.
5. In the from channel section [3], select the channel to be read from. In this case, 1 RGB.
6. Make sure [4] is selected, then press the **Clone to Slave Fixtures** button [4]. This will copy all channel values to slave fixtures (blue).
7. Press the **Macro Patch** button in the pop-up window that appears.

Note: As an alternative to the above example, the channels of fixtures 1 - 6 could all be assigned to a single dimmer fader (fixtures 1 - 6 would read channel data from the dimmer fader). In this case, a "hidden" dimmer fader would be used (the fader's 3D representation is not visible in 3D view, thus it is "hidden"). As with other Fixture Drivers, hidden faders are chosen from the Fixture Drivers List *(see Section 3.2)*. For an example of using the Patch Macro with hidden faders, please observe how par fixtures are assigned in the default demo database ("**/**" folder in Database Folders List, *see Section 1.5.4)*.

3.9.3.1 Undo Patch Macro

To undo a Patch Macro, select fixture(s), then un-select the **Read** or **Master** button [1]. Make sure to press the **Clone to Slave Fixtures** button [4] if multiple fixtures are selected.

3.9.4 Invert Pan / Tilt Directions

Figure 63

Pressing the **Pan / Tilt** inversion buttons *(see* [12] *in Figure 44)* will invert the Pan / Tilt DMX input and output signal of selected fixtures.

Note: This can be used to calibrate a 3D fixture's pan and tilt with an actual physical fixture's pan and tilt. For example, when fixtures are placed upright on the stage floor and hanging down from a truss; by inverting the floor fixture's pan, all fixtures (floor and truss) will pan in the same direction.

3.10 Patch Camera to DMX

Patching the Camera to DMX allows you to control the following functions with a lighting console (DMX-in) or with LightConverse in Full Processing mode (DMX-out):

Ch. 1: Camera Pan
Ch. 2: Camera Tilt
Ch. 3: Camera Centre X
Ch. 4: Camera Centre Y
Ch. 5: Camera Distance
Ch. 6: Ambient Light Level
Ch. 7: Automatic Room Rotation
Ch. 8: Smoke Level
Ch. 9: Camera FOV

Tip! If you want to record any the above functions (camera moves, fly-ins, etc.) as part of your programming, patch the camera to a separate DMX address than what you have your fixtures on.

Note: DMX camera control will automatically be turned off whenever any of the functions are operated normally, i.e., by adjusting smoke level via the Room Menu or moving camera manually, etc.

To patch and control the Camera for use with a lighting console (DMX-in):

1. In the **3D View** of the **DMX Setup Screen**, right-click in the **Compass** area.

Figure 64

2. Press the **DMX-in** button to patch the camera to a DMX universe (make sure to press **Apply** after selecting address and universe).

3. Exit the **DMX Setup Screen**.

4. In the **3D View** of the **Main Screen**, right-click in the **Compass** area.

Figure 65

5. Press the **DMX-in** button to activate DMX control from the lighting console.

6. The functions can now be controlled from the lighting console.

To patch and control the Camera for use when in Full Processing mode (DMX-out):

Note: Patching a camera to DMX-out requires a few extra steps than when patching to DMX-in.

1. In the **DMX Setup Screen,** choose the **.3D camera device** fixture driver from the **Fixture Drivers List** (located in the "Hidden" folder). *(See Section 3.2, Choosing Fixture Drivers, for more information.)*

2. Patch the .3D camera device fixture driver as explained in *Section 3.9.2, Patch DMX Output.*

3. In the **3D View** of the **DMX Setup Screen**, right-click in the **Compass** area.

4. Press the **DMX-out** button *(see Figure 64)* to patch the camera to the **same** DMX address and universe as you did in Step 2 above (make sure to press **Apply** after selecting address and universe).

5. Exit the **DMX Setup Screen.**

6. In the **2D View** of the **Main Screen,** select the Camera icon**.**

7. In the **3D View** of the **Main Screen**, right-click in the **Compass** area.

8. Press the **DMX-out** button *(see Figure 65)* to activate DMX control.

9. The functions can now be controlled from the Fixture Functions window *(see Section 4.3.2).*

Note: Please remember that DMX camera control will automatically be turned off whenever any of the functions are operated normally, i.e., adjusting the smoke level via the Room Menu or moving the camera manually, etc.

3.11 Import / Export

3.11.1 Fixtures Project *(see [13] in Figure 44)*

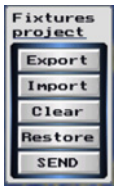


Figure 66

Export: Multiple fixtures may be exported and saved for later use in other projects. To export the project, select the required fixtures, then press the **Export** button. Next, enter a project name. [Hot Key = Ctrl+S].

Import: Use to import a previously exported fixture project. [Hot Key = Ctrl+L]. Select a empty cell in the **Fixture Drivers List** *(see [1] in Figure 44)* before importing.

Clear: Press to completely delete all fixtures (clear fixture project memory). [Hot Key = Ctrl+N].

Restore: Press to restore the fixture project memory (this can also be used to undo all changes made before exiting.)

Send: Press to send selected fixtures patch via Ethernet to Zero 88 consoles or other LightConverse software in network. LightConverse can also receive patching information from Zero 88 consoles.

Note: The **Send** function is only available with Unlimited and Net-In Zero 88 versions.

3.12 Paperwork

3.12.1 Paper and Plot Modes of View *(see [14] in Figure 44)*

Figure 67

Pressing the **Paper** button located at the top of the **DMX Setup Screen** will display the fixtures in filled wireframe mode. [Hot Key = F3].

Pressing the **Plot** button will display the fixtures in wireframe mode only. [Hot Key = F4].

Tip! Set the **Camera FOV** (field of view) to Zero to obtain a flat, 2D view, which can be suitable for CAD type print outs. [Hot Key = 0] *(For more information on the Camera FOV, see Section 1.5.5.2, Room Menu.)*

Tip! To capture a .JPG screenshot of the view, press the **Print Screen** key on your keyboard. The rendered screenshot will be located in the _ScreenShots folder where LightConverse was initially installed, for example, C:\LightConverse308_ScreenShots. The screenshot can then be copied and emailed to a client for review. *(See Section 1.5.6.1 for more information.)*

3.12.2 Printing Options

Note: The Vector Output to Printer and Fixtures Specification Printing Report features as described below are only available with Net-In and above versions of LightConverse.

Figure 68

3.12.2.1 Bitmap Output to Printer (Screen)

Pressing the **Screen** button *(see [15] in Figure 44)* will send a detailed, high-resolution bitmap output of the view to a printer.

3.12.2.2 Vector Output to Printer (Plot)

Pressing the **Plot** button *(see [15] in Figure 44)* will send a vector output of the view to a printer. [Hot Key = Ctrl+P]. The fixtures will be printed in wireframe mode only. The fixtures are printed along with their relevant fixture numbers as shown in the Fixtures Specification list *(see Section 3.12.2.3 below)*.

Note: Use Vector Output (Plot) for A3 size and greater formats.

Note: Only the fixtures in the 3D view will be included. If you want to include all fixtures, you may have to zoom out.

3.12.2.3 Fixtures Specification Printing

There are two methods available to print a list of fixtures used:

1. Pressing the **Report** button *(see* [15] *in Figure 44)* will print out a simple list of fixtures (name and number) used.

Note: Only the fixtures in the 3D view will be included in the report. If you want to include all fixtures, you may have to zoom out.

2. A further detailed report (**fixture.txt**) contains a complete list of all fixtures (including name, number, size, DMX patch, group number, 2D / 3D location and fixture driver DMX specifications). This file is located in the Database folder where LightConverse was initially installed, for example, C:\LightConverse308\Database_MyShow.

Note: To print out a list of objects used in the room, *see Section 2.5.2.3.*

3.13 DMX Setup Screen Hot-keys

To obtain the following list of available Hot-Keys in the DMX Setup Screen, press the ? button at the top of the screen.

Note: DMX Setup Screen Hot-Keys are pre-assigned and many are specific to the DMX Setup Screen.

3.13.1 Camera Operations

[Home] Move 3D Camera forward.
[End] Move 3D Camera backward.
[←] Move (Rotate if Ctrl pressed) 3D Camera left.
[→] Move (Rotate if Ctrl pressed) 3D Camera right.
[↑] Move (Rotate if Ctrl pressed) 3D Camera up.
[↓] Move (Rotate if Ctrl pressed) 3D Camera down.
[Space] Focus 3D Camera to selected fixture's center.

Number Pad:

[1] Set 3D Camera view from front-left.
[2] Set 3D Camera view from front.
[3] Set 3D Camera view from front-right.
[4] Set 3D Camera view from left.
[5] Set 3D Camera view from ceiling.
[6] Set 3D Camera view from right.
[7] Set 3D Camera view from left-back.
[8] Set 3D Camera view from back.
[9] Set 3D Camera view from right-back.
[0] Set 3D Camera field of view (FOV) to zero (2D).
[.] Set 3D Camera field of view (FOV) to normal (3D).

3.13.2 Shortcuts

[F1] Open 2D screen.
[F2] Open 3D screen.
[F3] Open Paper screen.
[F4] Open Plot screen.

[PrintScreen] Save screen rendering to file (located in _Screenshots folder).

[PauseBreak] Quit Program.

[PageUp] Set ambient light brighter.
[PageDn] Set ambient light darker.

[Insert] Add fixture to scene.
[Delete] Delete selected fixtures.

[Alt] Change tool.

[-] Previous fixture selection.
[+] Next fixture selection.
[Enter] Invert one group fixtures selection.

[Ctrl+N] Clear current fixtures project.
[Ctrl+S] Export selected fixtures to project file.
[Ctrl+L] Import selected fixtures from project file.
[Ctrl+G] Assign selected fixtures to a group.

[Ctrl+D] Duplicate selected fixtures.

[Ctrl+I] Patch fixtures' DMX input.
[Ctrl+O] Patch fixtures' DMX output.

[Ctrl+P] Print visible fixtures' plot.

[Ctrl+B] Open fixture's browser window.
[Ctrl+M] Open fixture's macro-patch window.
[Ctrl+R] Open fixture's rotation window.

3.13.3 Using DMX Setup Screen Hot-Keys in FullScreen

All of the above Hot-Key operations can be used in FullScreen.

To switch to FullScreen, select **FullScreen** from the **Room Menu**. Select **Desktop** to return to Desktop.
(For information on the Room Menu, see Section 1.5.5.2.)

You can also press [Tab] to switch to FullScreen. Press again to return to Desktop.

Chapter 4: Full Processing Mode

This chapter covers the following topics:

- *4.1 Introduction*
- *4.2 Main Screen*
- *4.3 Programming Fixtures*
  - *4.3.1 Selecting Fixtures*
  - *4.3.2 Fixture Functions window*
  - *4.3.3 Parameter Types*
- *4.3.3.1 Muting and UnMuting Parameters*
- *4.3.3.2 Returning Parameters to their default muted state*
  - *4.3.4 Fixture Menu Window*
- *4.3.4.1 Fixture Menu*
- *4.3.4.2 Pan / Tilt Shape Generator*
- *4.3.4.3 Phase Shift*
- *4.4 Scenes*
  - *4.4.1 Scene "Z"*
- *4.5 Tracks*
  - *4.5.1 DMX Input Track*
  - *4.5.2 Tracks 1-2-3-4*
  - *4.5.3 Flash Preset Track*
- *4.6 Groups*
  - *4.6.1 Group 0*
  - *4.6.2 Groups 1-12*
  - *4.6.3 Group 14*
  - *4.6.4 Group Masters Window*
- *4.6.4.1 Group Masters X-Fader*
  - *4.6.5 Saving and Loading Group-Files*
  - *4.6.6 Crossfading Group-Files*
  - *4.6.7 Group Speed Window*
- *4.7 Shows*
  - *4.7.1 Saving and Loading Show-Files*
  - *4.7.2 Crossfading Show-Files*
- *4.8 Using Full Processing Mode Hot-Keys*
  - *4.8.1 Keyboard*
  - *4.8.2 Assigning Hot-Keys*
  - *4.8.3 Keys Bank*
  - *4.8.4 Assign Fixtures selection to a Hot-Key*
  - *4.8.5 Actions*
  - *4.8.6 Using Full Processing Mode Hot-Keys in FullScreen*
- *4.9 Full Processing Mode Fold-Out Diagram*

4.1 Introduction

- **Full Processing Mode** is comprised of the control software and 3D Visualizer thus allowing you to design, program and execute your show from one complete platform. The control software is very flexible, allowing you to program and playback your show as you see fit. *(To select Full Processing Mode, see Section 1.5.3, Selecting Operating Modes).*
- The memory elements of the Full Processing Mode include Scenes, Tracks, Groups, and Shows, all of which are explained further the following sections. The main thing to keep in mind is that a Scene is a part of a Track, Tracks are part of a Group, and Groups are part of a Show. All Shows are located in a Database folder *(see Section 1.5.4)*.
- Scenes, Tracks, Groups, and Shows can be saved and loaded in various ways, depending on your needs.

Note: While programming, it is **very** important to save your Scene, Track, Group, or Show.

Note: It is highly recommended to use Hot-Keys for programming and playback functions as they are a very quick and effective way to bring out the true power of Full Processing Mode *(see Section 4.8)*.

- There is a logic diagram of Full Processing Mode included at the end of this chapter.

4.2 Main Screen

If this is the first time operating LightConverse, the **Main Screen** from the default demo database will open as shown below in *Figure 69*. Otherwise, the last opened database will load.

Note: A database is saved automatically when closing LightConverse.

The **Setup Menu** [1] includes access to the **Room Editor** and **DMX Setup** screens in addition to **Database** selection and creation. *(See Section 1.5.4 for more information on Database selection and creation.)*

Figure 69

Press the **2D** [2] and **3D** [3] buttons to change views.

To switch to **3D FullScreen** view, right click in the **3D View Compass** area to open the **Room Menu**, then select **Fullscreen**. Select **Desktop** to return to the Desktop view *(see Section 1.5.5.2 for more information).*

To minimize or close LightConverse, press the **Minimize** or **Exit** buttons [4].

4.3 Programming Fixtures

4.3.1 Selecting Fixtures

- To select a fixture, left-click on it. The fixture will turn red (master) when selected and its parameters will appear in the **Fixture Functions Window** *(see Figure 70 below).*
- Once a fixture is selected, additional **individual** fixtures of the same type can be selected by right-clicking.
- Double left-clicking on a fixture will select **all** same-type fixtures.
- Additional selected fixtures will turn blue (slaves).
- Only the same type of fixtures can be selected at one time.
- Multiple same-type fixture selection is only possible within the group that the fixtures are assigned to. *(See Assigning Fixtures to a Group, Section 3.7.)*
- If same-type fixtures have been assigned to different groups, only the fixtures assigned to one group can be selected at one time. For example, if you have four Mac 500's in Group 1 and four Mac 500's in Group 2, double clicking on a Mac 500 in Group 1 will select all Mac 500's in that group only.

4.3.2. Fixture Functions Window

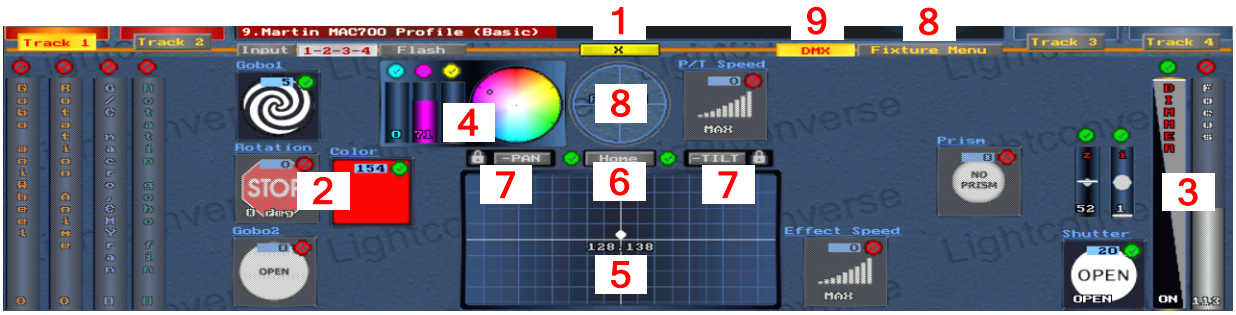


Figure 70

The **Fixture Functions Window** automatically opens whenever a fixture (or group of fixtures) is selected for editing. To close this window, press the **X** button [1].

4.3.3 Parameter Types

Note: Once you have selected your fixtures, choose the track that you would like to program scenes on before editing fixture parameters. *(See Sections 4.4 and 4.5 for more information on scenes and tracks.)*

Different parameter types are edited in various ways:

Icons [2] (shutter, colour wheel, gobo wheel, etc): Left click or use the mouse wheel. (As with actual fixtures, the first step in programming would be to open the shutter.)

Faders [3] (dimmer, iris, zoom, etc.): Left click and drag or use the mouse wheel.

CMY fader / picker [4]: Left click and drag fader or picker. The mouse wheel can be used to adjust saturation.

Pan / Tilt [5]: **- Fine adjustment**: Use the right mouse button to drag the selected fixtures' beam in the Pan / Tilt coordinates area [5]. The mouse wheel can be used for Tilt adjustments. The mouse wheel can also adjust Pan if Tilt is locked.

- Coarse adjustment: Use the left mouse button to drag the selected fixtures' beam. Pointing and clicking with the left mouse button in the Pan / Tilt coordinates are will set all selected fixtures to one point.

- To set Pan and Tilt parameters to their default state, press the **Home** button [6].

- Pan and Tilt parameters can be individually **locked** by pressing their respective buttons [7].

- Pan and Tilt parameters can **inverted**. For example, to invert Pan, press the button [7].

Pan / Tilt (Follow Mode) [8]: Left click in **Follow Mode** area, then right click or right drag the fixture light beam in the **3D Window**. To turn off Follow Mode, left click in Follow Mode area again.

Right clicking in the **Follow Mode** area will open the **Pan Diapasone** menu from which you can select the range of pan movement while in Follow Mode.

4.3.3.1 Muting and UnMuting Parameters

When a fixture parameter is muted, it will have no effect on the scene. Parameters are automatically unmuted when being edited. Please note that muting/unmuting a parameter will affect all scenes in the track.

- To mute or unmute an individual parameter, click its mute or unmute button.
- To unmute all fixture parameters, press the **Unmute** buttons in the **Fixture Menu** *(see Section 4.3.4.1).*

4.3.3.2 Returning Parameters to their default muted state

- To return an individual parameter to its default muted state, right click on the parameter itself (except pan and tilt, in this case, just click the pan or tilt mute button).
- To return all fixture parameters to their default muted state, press the **Mute** buttons in the **Fixture Menu.**

4.3.4 Fixture Menu Window

The **Fixture Menu Window** contains the **Fixture Menu** and tools for extended fixture data (**Pan / Tilt Shape Generator** and **Phase Shift**). To open this window, press the **Fixture Menu** button *(see* [8] *in Figure 70).*

4.3.4.1 Fixture Menu

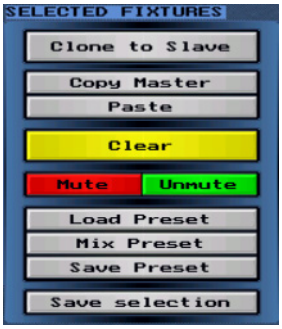


Figure 71

Clone to Slave: Copy data from the master fixture (red) to slave fixtures (blue).
Copy Master: Copy data from the master fixture (red) to the clipboard.
Paste: Paste fixture data from the clipboard to selected fixtures.
Clear: Delete fixture data from the selected fixtures.

Mute / UnMute: Mute (default state) or UnMute all selected fixtures.

Load Preset: Load previously saved Preset scenes.
Mix Preset: Merge previously saved Preset scenes with active scene data.
Save Preset: Save current fixture data as a Preset scene.

Save Selection: Press to assign selected fixtures to a Hot-Key *(Section 4.8.4).*

4.3.4.2 Pan / Tilt Shape Generator

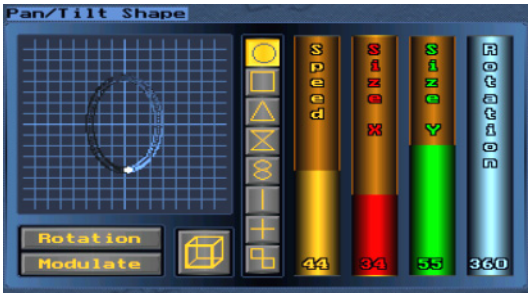


Figure 72

The **Pan / Tilt Shape Generator** can be used to apply customizable shapes to selected fixtures.

By starting with one of eight available shapes, for example, a circle, it is possible to adjust various attributes such as **Speed**, **Size (X,Y)**, **Rotation**, and **Modulation**.

Note: The Pan / Tilt Shape Generator is only available when editing fixtures in Tracks 1-2-3-4 and the Flash Preset Track. *(See Section 4.5, Tracks).*

4.3.4.3 Phase Shift

Figure 73

The **Phase Shift** wave of selected fixtures can be adjusted by dragging the percentage bar [1] to the desired value.

The Phase Shift is based on a percent of a track's cycle time (the tracks scenes quantity).

The Phase Shift also has an effect on the Pan / Tilt Shape Generator. The effect is based on a percent of a shape's cycle time. Please note that when using a Phase Shift with the Pan / Tilt Shape Generator, it is advisable to use same shapes in all scenes in a track, otherwise the fixtures will run different shapes and the wave will be broken.

The wave can be reset to zero or have a random number applied by pressing the **Reset** and **Random** buttons, respectively.

The wave of selected fixtures can be set three ways, **Number**, **2D**, or **3D**:

Number: Each selected fixture's phase shift is based on the master fixture's phase divided by its distance from the master fixture's number.
2D: Each selected fixture's phase shift is based on the master fixture's phase divided by its distance from the master fixture's 2D position.
3D: Each selected fixture's phase shift is based on the master fixture's phase divided by its distance from the master fixture's 3D position.
Note: The phase shift affects the scenes in Tracks 1-2-3-4 only. It is not available when editing fixtures in the DMX-Input and Flash Preset Tracks. (*See Section 4.5, Tracks).*

4.4 Scenes

Figure 74

The looks you create by editing fixture parameters are called **Scenes**. A scene can consist of a simple static look containing one fixture parameter value (for example, a single colour or pan / tilt position) or include multiple fixtures and parameters.

Consecutive scenes are played back in one of four parallel Tracks (Tracks 1-2-3-4, *see Section 4.5.2)*.

Note: Besides Tracks 1-2-3-4, there are two other types of tracks; the DMX Input Track, and the Flash Preset Track. This section only describes working with scenes in Tracks 1-2-3-4. The DMX Input and the Flash Preset Tracks contain one scene each, which is covered in their respective sections, 4.5.1 and 4.5.3.

To edit scenes on Tracks 1-2-3-4, select desired fixtures in the **2D** or **3D Main Screen** *(Figure 69)*, then select one of the tracks.

Any scene can be saved to disk as a "**Preset-File**" scene *(see* [9] *in Figure 75)*. It's possible to load saved Preset-Files from the disk manually or automatically by pressing a Hot-Key *(see Section 4.8 for more information on Hot-Keys).*

Each track (Tracks 1-2-3-4) holds up to 32 individual scenes [1]. The list of scenes is executed automatically when the track is played. Scenes can also be selected manually by left clicking on the desired scene or by clicking and holding the right mouse button while moving through the list. The entire scene list can be scrolled via the mouse scroll wheel.

Scenes in the track are ordered from the bottom up, with each scene duplicating and building on the previous scene's values. New scenes are created and edited in the **Scene Menu** *(Figure 75)* which is opened by pressing the **Scene Menu** button [2].

Figure 75

Scene Menu

A scene can be given a name with a maximum of 14 characters. To add a name, click on the scene name area [3].

Once a scene has been created, the next scene in the list is created by pressing the **Duplicate** button [4]. To completely delete a scene, press the **Delete Scene** button [4].

A global "**Trig**" time governs the interval between all scenes in the track. Each scene has an individual **Scene time** [5] which is set as a percentage of the Trig time. A **FadeOut time** [6], for setting the fade to the following scene, is set as a percentage of the Scene time. To set Scene and FadeOut times, click and drag each respective bar to the desired percentage value.

Scenes can be moved to other areas in the list via the **Copy Scene** and **Paste Scene** buttons [7]. (Note that only the values of the copied scene will be pasted, not the name. To transfer the values *and* name, use the Save Scene->Preset and Load Preset->Scene buttons [9].

The **Clear Scene** button [8] is used to clear the parameter values and name of the scene (the scene's placement in the track will remain).

Scenes can be saved as **Preset-Files** [9] so that they can be used for future programming by using the **Save Scene->Preset** and **Load Preset->Scene** buttons. The **Mix Preset->Scene** and **UnMix Preset->Scene** buttons are used for merging or unmerging active scene data. Pressing the **Link** button [10] will allow changes to the Preset-File to be automatically updated in all tracks, groups or shows in which it is located. The updated Preset-File will be visible the next time the track, group or show is loaded.

Note: Many of the above operations can be performed quickly by using Hot-Keys *(see Section 4.8).*

4.4.1 Scene "Z" *(see* [1] *in Figure 74)*

This special scene is only used when loading saved Track-Files into Tracks 1-2-3-4. It allows you to preset a scene before scene 1 in the track. This is useful, for example, when you would like to set up pan and tilt positions before playing scene 1 in the track.

If Track-Files are loaded by a Hot-Key, Scene Z will preset before you release the Hot-Key. Once you release the Hot-Key, scene 1 will begin.

4.5 Tracks

Figure 76

There are three types of tracks; the **DMX Input Track**, **Tracks 1-2-3-4**, and the **Flash Preset Track**.

An order of priority is associated with the output of the track types: The DMX Input Track has the lowest priority, followed by Tracks 1-2-3-4 and the Flash Preset Track (highest).

Note: Each track type belongs to a group. Group 0 contains the DMX Input track, each of Groups 1-12 contains Tracks 1-2-3-4, and Group 0 contains the Flash Preset Track. *(See Section 4.6 Groups.)*

4.5.1 DMX Input Track

Figure 77

This **DMX Input Track** consists of one scene. It has no priority over the other track types, i.e.,Tracks 1-2-3-4 and Flash Preset Track.

To edit a DMX Input Track scene, select desired fixtures in the **2D** or **3D Main Screen** *(Figure 69),* then press the **Input** button *(Figure 76).*

This DMX Input Track can be used two ways; for DMX input of a scene, or for a scene if no DMX input is patched (or DMX input signal is disconnected). Either way, it may be used as a backup scene in case there are no scenes on any of the higher priority tracks.

DMX input can be selected from one of 16 universes [1].

When the track is switched off via its **Mute** button [2], it will have no effect on the output.

Scene Menu operations [3]:

- **Clear Scene:** Press to delete scene from the track.
- **Copy / Paste Scene:** The scene can be copied to or pasted from the clipboard.
- Load Preset->Scene: Load a previously saved Preset-File scene to the DMX Input Track.
- **Save Scene->Preset:** Incoming DMX scene data can be saved as a Preset-File scene. The saved Preset-File can then be used in other tracks.

Note: If the DMX Input Track contains a scene, the Input button will turn red (see Figure 76).

4.5.2 Tracks 1-2-3-4

Figure 78

Tracks 1-2-3-4 are where consecutive scenes are played back. Each of tracks 1-2-3-4 holds up to 32 scenes. Tracks 1-2-3-4 have priority over the DMX Input track.

To edit scenes on Tracks 1-2-3-4, select desired fixtures in the **2D** or **3D Main Screen** *(Figure 69)*, then select one of the tracks.

Any of Tracks 1-2-3-4 can be saved to disk as a "**Track-File**" *(see* [14] *in Figure 79)*. It's possible to load saved Track-Files from the disk either manually or automatically by pressing a Hot-Key *(see Section 4.8 for more information on Hot-Keys).*

Tracks 1-2-3-4 follow an individual priority condition from left to right (track 1 being the lowest, track 4 being the highest). For example, if the same parameter from the same fixture is on tracks 1 and 2, the parameter on track 2 will have priority (unless track 1 was "muted" as explained in the next paragraph).

Each of Tracks 1-2-3-4 can be switched off via its **Mute** [1] button. The track will continue playing but will not have any effect on the output.

A global **Trig time** [2] governs the interval between all scenes in the track. The trig time is set by clicking on the left/right arrows for small decrements/increments and by clicking and holding the left/right mouse keys while dragging the mouse for larger decrements/increments. The mouse scroll wheel can also be used for larger decrements/increments.

Pressing **Play** [3] will begin the track's execution *(see also **Playback** [16], Figure 79).*

Each of Tracks 1-2-3-4 can be given a file name with a maximum of 24 characters. To add a name, click on the file name area [4].

Pressing the **Link** button [17] will allow changes to the track be automatically updated in all groups or shows in which it is located. The track must be saved as a Track-File, see [14] in Figure 79 below.

Each of the Tracks 1-2-3-4 are edited in its **Track Menu** *(Figure 79)* which is opened by pressing the **Track Menu** button ([5] above). Many of the functions are similar to the functions in the Scene Menu *(Figure 75)*, however, the Track Menu functions will affect **all** of the scenes in the track, not just individual scenes, as is the case with the Scene Menu.

Figure 79

Track Menu

The **Duplicate All** button [6] will double each scene in the track.

The **Delete Odd** and **Delete Even** buttons [7] are used for deleting odd or even scenes in the track.

Click and drag the **Scene** [8] and **FadeOut** [9] bars to set Scene and Fadeout times of all scenes in the track. Scene and Fadeout time **Wave** and **Randomize** functions can set here also.

Use the **Paste all Scenes** button [10] to paste a copied scene into all scenes in the track.

Use the **Clear all Scenes** button [10] to clear parameter values of all scenes in the track.

Use the **Load Preset->Scene** button [11] to load a previously saved Preset scene into all scenes in the track. The **Mix Preset->Scene** and **UnMix Preset->Scene** buttons [11] are used for merging and unmerging preset data in all scenes in the track.

The **New Track** button [12] is used to delete all scenes in the track and start with a fresh track. The **Leave One Scene** button [13] will delete all of the scenes in the track except for the selected one.

Tracks can be saved as **Track-Files** so that they can be used for future programming by using the **Save Track** and **Load Track** buttons [14].

Enable X-fade in Load [15] is used to enable or disable the FadeIN time when the track is crossfaded in a "Group-File" *(see Sections 4.6.5 - 4.6.6 for more information on Group-Files).*

Playback [16] is used to set track playback options. Normally, the track will loop back to the first scene once the last scene has completed. The track can also be set to playback the scenes only once (**Single** mode) or reverse direction (**Rebound** mode).

Note: If any of Tracks 1-2-3-4 contain a scene, the **1-2-3-4** button will turn red *(see Figure 76).*

Note: Many of the above operations can be performed quickly by using Hot-Keys *(see Section 4.8).*

4.5.3 Flash Preset Track

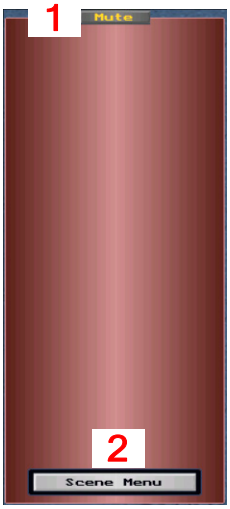


Figure 80

This **Flash Preset Track** consists of one scene. It has the highest priority over the other track types, i.e., the DMX-Input Track and Tracks 1-2-3-4.

To edit a Flash Preset Track scene, select desired fixtures in the **2D** or **3D Main Screen** *(Figure 69),* then press the **Flash** button *(Figure 76)*

The Flash Preset Track scene can be used as an "override" scene by assigning it to a Hot-Key. In fact, you can have many individual override scenes assigned to many individual Hot-Keys, thus allowing you do quick colour / gobo bumps, or strobe effects, for example. *(See Section 4.8 for information on how to assign Hot-Keys).*

When the track is switched off via its **Mute** button [1], it will have no effect on the output.

Scene Menu [2]:

- **Clear Scene:** Press to delete scene from the track.
- **Copy / Paste Scene:** The scene can be copied to or pasted from the clipboard.
- Load Preset->Scene: Load a previously saved Preset-File scene to the Flash Preset Track.
- **Save Scene->Preset:** Flash Preset data can be saved as a Preset-File scene. The saved Preset-File can then be used in other tracks.

Note: If the Flash Preset Track contains a scene, the **Flash** button will turn red *(see Figure 76).*

4.6 Groups

Groups contain Tracks. There are three Group types: **Group 0**, **Groups 1-12**, and **Group 14**.

Note: Group 13 is non-functional and reserved for future use.

- Groups 1-12 are created by assigning specific fixtures to them during the DMX setup process *(see Assigning Fixtures to a Group, Section 3.7).* Please note that a fixture can be assigned to one group only, it is impossible to assign a fixture to several groups at the same time. (Groups 0 and 14 automatically share all fixtures and therefore do not need to be created.)
- Each Group has its own **Group Master** fader to adjust its overall intensity level *(see Section 4.6.4, Group Master Window).* The Group Masters' intensity levels may be crossfaded via the **Group Master X-Fader** *(see Section 4.6.4.1).*
- A Group can be saved to disk as a "**Group-File**". It's possible to load saved Group-Files from the disk either manually *(see Section 4.6.5),* or automatically by pressing a Hot-Key. Saved Group-Files can be crossfaded with each other *(see Section 4.6.6).*
- Groups' 1-12 **Speed** and **Fade In / Out** functions can be adjusted via the **Group Speed Window** *(see Section 4.6.7).*

4.6.1 Group 0

Group 0 contains the DMX Input Track. Because the DMX Input Track has no priority over other track types, i.e., Tracks 1-2-3-4 and the Flash Preset Track, **Group 0** has no priority over **Groups 1-12** (Tracks 1-2-3-4) and **Group 14** (Flash Preset Track).

4.6.2 Groups 1-12

Each of **Groups 1-12** contains its own Tracks 1-2-3-4. Because Tracks 1-2-3-4 have priority over the DMX Input Track, **Groups 1-12** (Tracks 1-2-3-4) have priority over **Group 0** (DMX Input Track).

The four tracks (1-2-3-4) in each of Groups 1-12 can be played at the same time, thus making it possible to play up to 48 tracks simultaneously (4 tracks x 12 groups = 48 tracks). For example, you could have MAC 500's assigned to Group 1 and MAC 600's assigned to Group 2. Track 1 in each Group could contain Pan / Tilt scenes, Track 2 Colour scenes, Track 3 Gobo scenes, etc.

Note: As mentioned earlier, Groups 1-12 are created by assigning specific fixtures to them during the DMX setup process *(see Assigning Fixtures to a Group, Section 3.7).*

4.6.3 Group 14

Group 14 contains the Flash Preset Track. Because the Flash Preset Track has priority over other track types, i.e., the DMX Input Track and Tracks 1-2-3-4, **Group 14** has priority over **Group 0** (DMX Input Track) and Groups **1-12** (Tracks 1-2-3-4).

4.6.4 Group Masters Window

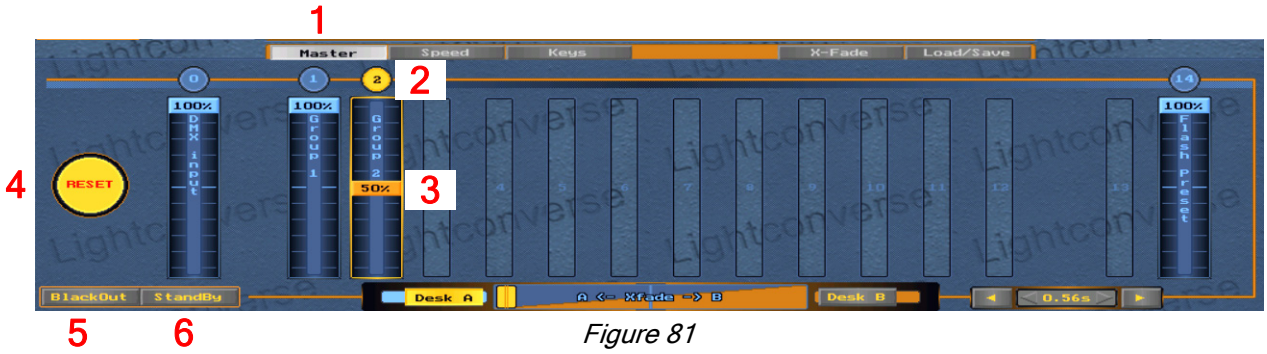


Figure 81

To open the **Group Master Window**, press the **Master** window button [1] in the **2D** or **3D Main Screen.**

Each group has its own **Group Master fader** [3] to adjust its intensity.

A Group Master is selected or unselected by clicking on its fader number [2]. It is also selected by moving its fader [3].

Note: A fixture's dimmer parameter must be unmuted and above zero for its intensity to be controlled with a Group Master fader *(see Section 4.3.3.1, Muting and Unmuting Parameters).*

The **Reset** button [4] is used to reset all system memory. This can be useful to begin working with a "clean slate". After a reset, any saved files can then be reloaded manually *(Section 4.6.5)* or via Hot-Keys.

The **Blackout** button [5] is used to black out intensity levels of all fixtures.

The **StandBy** button [6] will put all fixtures in a standby state.

4.6.4.1 Group Masters X-Fader

Two banks (or desks, **Desk A** and **Desk B**) of identical Group Masters allow you to set group master intensity levels on each desk then crossfade between the desks.

Figure 82

Desk A and Desk B are selected by clicking on their respective buttons [1]. The crossfade can be executed manually by dragging the **X-Fader** [2], or automatically by pressing one of the directional arrow keys [3]. The automatic X-Fade time (0-120 seconds) is set by clicking on the left/right arrows [4] for small decrements/ increments or by using the mouse scroll wheel for larger decrements/increments.

Note: The above crossfade function applies only to Group Master intensity levels and operates similar to a conventional two-scene preset desk. To crossfade all parameters between groups, you must save different group looks as Group-Files, then crossfade the saved Group-Files via the X-Fade window *(see Sections 4.6.5 and 4.6.6 for more information).*

4.6.5 Saving and Loading Group-Files

Once you have edited the contents of a group, you can save it as a **Group-File** via the **Load/Save Window**, which is accessed by pressing the **Load/Save** button [1] in the **2D** or **3D Main Screen** *(Show-Files are also saved and loaded in this window, see Section 4.7)*.

To save a Group-File, press the **Save** [2] button, then enter a Group-File name (maximum of 24 characters).

To load a new Group-File, press the **Load** button [3] and select the Group-File.

To clear a currently loaded Group-File, press the **Reset** button [4].

Pressing the **Link** button [5] will allow changes to the Group-File be automatically updated in a show to which it belongs.

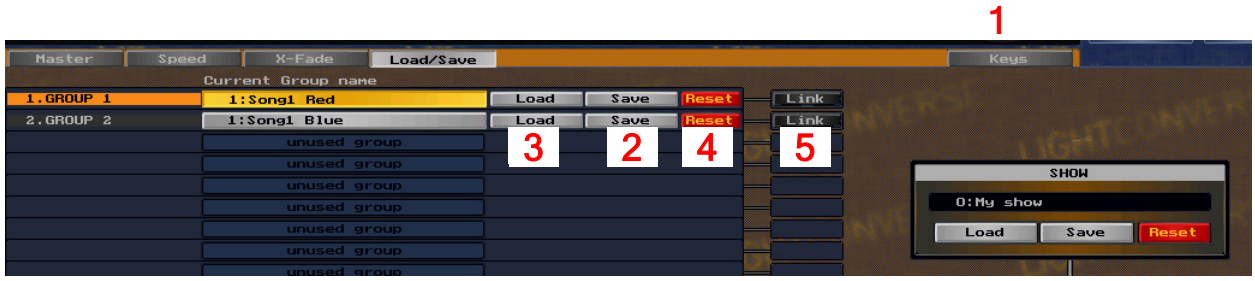


Figure 83

Note: The above operations can be performed quickly by using Hot-Keys *(see Section 4.8)*

4.6.6 Crossfading Group-Files

Multiple Group-Files may be simultaneously crossfaded via the **X-Fade Window**, which is opened by pressing the **X-Fade** button [1] in the **2D** or **3D Main Screen**. *(Show-Files can be crossfaded here also, please see Section 4.7.1.)*

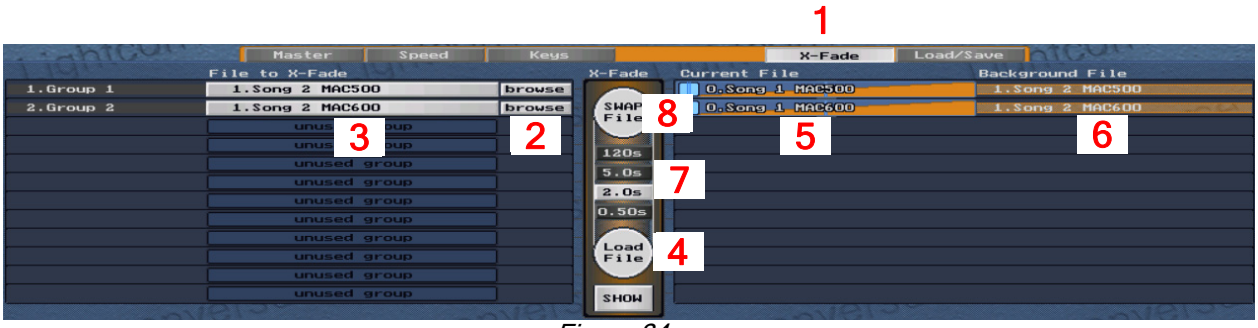


Figure 84

Press the **Browse** button [2] to select (prepare for load) the **Group-file** to crossfade [3].

Pressing the **Load File** button [4] will begin the crossfade. During the crossfade, the selected Group-File being crossfaded will become the "**Current File**" [5], while the previous Current File will become the "**Background File**" [6].

To set the crossfade time, select one of the four **Time** buttons [7] and adjust the fade-in time (0-120 sec.) with the mouse scroll wheel.

The **SWAP File** button [8] is used to exchange the Current File with the Background file

Tip!: Use Hot-Keys to load multiple Group-Files.

4.6.7 Group Speed Window

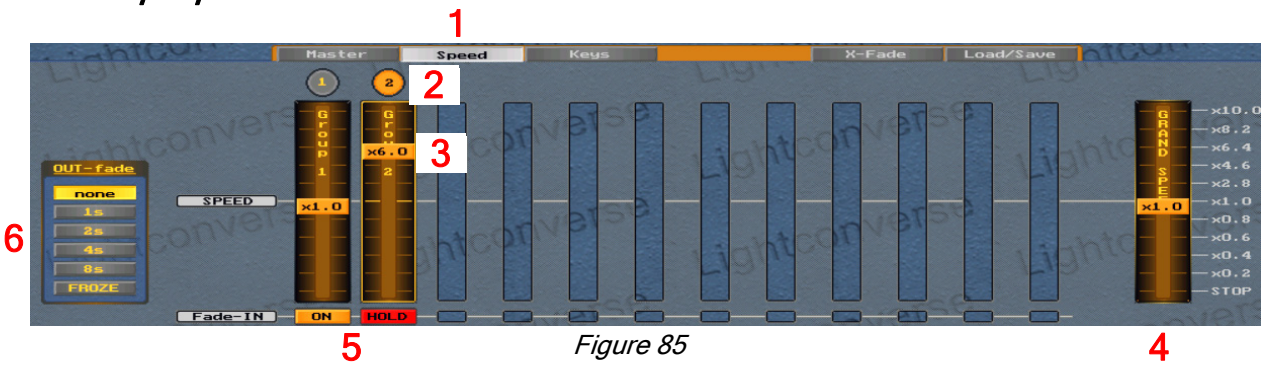


Figure 85

To open the Group Speed Window, press Speed button [1] in the 2D or 3D Main Screen.

Each of Groups 1-12 has its own Speed fader [3] to adjust its speed.

A group is selected or unselected by clicking on its fader number [2]. It is also selected by moving its fader [3], thus allowing each group's speed to be adjusted from a full stop (x0.0) to 10 times (x10) its original speed.

A Grand Speed fader [4] is used for overall speed control of all groups (note that grand-speed values from 0 to 1.0 will generate a fade effect. This allows you to decrease the speed of movement even if fade is not used).

The **Fade-IN** function [5] located at the bottom of the speed fader can be adjusted (with the mouse scroll wheel) to smooth out DMX data changes occurring within the group. It can also be used to stop (**Hold**) all changes in the group.

The **Out-Fade** section [6] controls the fade of DMX output without affecting what is taking place in the 3D Visualizer. This can be useful to slow down or freeze the output while you make changes in the 3D Visualizer.

4.7 Shows

A **Show** contains all memory elements (Scenes, Tracks, and Groups). Saved shows are called **Show-Files.**

4.7.1 Saving and Loading Show-Files

Show-File memory functions are performed via the **Load/Save Window**, which is accessed by pressing the **Load/Save** button in the 2D or 3D Main Screen *(see* [1] in *Figure 83)*.

Figure 86

To save a Show-File, press the **Save** [1] button, then enter a Show-file name (maximum of 24 characters).

To instantly load a Show-File, press the **Load** button [2] and select the file. Note that Show-Files may be crossfaded also *(see Section 4.7.2)*.

To clear **all Group-Files** in the show, press the **Reset** button [3].

4.7.2 Crossfading Show-Files

Figure 87

Show-Files may be crossfaded via the **X-Fade Window**, which is accessed by pressing the **X-Fade** button in the 2D or 3D Main Screen *(see* [1] in *Figure 84)*.

Press the **SHOW** button [1], then select the show that you would like to fade-in.

To set the crossfade time, select one of the four **Time** buttons [2] and adjust the fade-in time (0-120 sec.) with the mouse scroll wheel.

4.8 Full Processing Mode Hot-Keys

4.8.1 Keyboard

Many functions of the Full Processing Mode can be assigned to individual keys of your keyboard ("Hot-Keys").

To assign a function to a key, press the **Keys** button [1] in the **Main Screen** to open the **Keys Window** as shown in *Figure 88*.

Note: Full Processing Mode Hot-Keys are User-Assigned.

Figure 88

4.8.2 Assigning Hot-Keys

To assign a function to a key, follow the example procedure below:

Note: This example shows how to assign a saved Preset Scene file to a Hot-Key (Load to Scene). The procedure is similar for assigning other functions (Actions, Load to Track, Load Group, Load Show, Flash Preset). *(For more information on Actions, see Section 4.8.5 below):*

1. Press **Setup** *(see* [2] *in Figure 88)*.

2. Select the desired Hot-Key.

Figure 89

3. Press **Browse** [3] to select a line in the **Hot-Key Functions List** (up to 12 functions may be assigned to an individual key).

4. Select a function from the function pop-up window [4]. For example, to assign a Preset-file, press Load to Scene.

Figure 90

5. Select a file from the file pop-up window. For example, select Scene 1 from the Preset-file pop-up window [5].

6. Press Load Preset-file in the Preset-file pop-up window [6].

7. If desired, press the Clone to all Banks button *see* [7] in *Figure 89*. to copy the Hot-Key to all Banks (1-12). *(See Keys Bank, Section 4.8.3 below.)*

8. Press Setup to end *(see* [2] in *Figure 88)*.

4.8.3 Keys Bank

- Twelve **Banks** of keys are available, thus allowing for a multitude of possible Hot-Key assignments.

To select and name a Bank, follow below:

1. Press the **Setup** button *(see* [2] in *Figure 88)*.
2. Press the **Keys Bank** button *(see* [8] in *Figure 88)*.

Figure 91

3. Select and name the Bank as shown in *Figure 91*.

Banks can assigned to Hot-Keys to allow quick switching between banks during playback.
For example, to assign Banks 1-12 to Hot-Keys 1-12, follow below:

1. Press **Setup** *(see* [2] *in Figure 88)*.
2. Select Hot-Key 1.
3. Press **Browse** *(see* [3] *in Figure 89)*.
4. Press **Action** *(see* [4] *in Figure 89)*.

Figure 92

5. Select **Set Key-Bank: 01** from the pop-up window as shown in *Figure 92*.
6. Press **Load Action-File** [9].
7. Press **Clone to all Banks** *(see* [7] *in Figure 89)*.
8. Repeat steps 2-7 for each of the remaining Banks 02-12.
9. Press **Setup** to end *(see* [2] *in Figure 88)*.

4.8.4 Assign Fixtures selection to a Hot-Key

Selected fixtures may be assigned to a Hot-Key for quick access. This can be useful if you need to quickly grab a group of fixtures while editing or during playback. Selected fixtures are assigned via the **Save Selection** button in the **Fixture Menu** *(see Section 4.3.4.1)*.

4.8.5 Actions

The following is a list of all Action-Files available *(see* [4] *in Figure 89)*:

0. CLONE MASTER FIXTURE
1. CLEAR SELECTED FIXTURES
2. PHASE SHIFT: 0
3. PHASE SHIFT: WAVE 100%
4. PHASE SHIFT: WAVE 50%
5. PHASE SHIFT: RANDOMIZE
6. DUPLICATE Scene
7. DELETE Scene
8. NEXT Scene
9. PREVIOUS Scene
10. GO TO SCENE 1
11. NEXT Track
12. PREVIOUS Track
13. KILL Scenes
14. CLEAR Track
15. CLEAR Group
16. GROUP-1: SELECT/CLOSE
17. LOAD Track dialog
18. SAVE Track dialog
19. LOAD Group dialog
20. SAVE Group dialog
21. LOAD Show dialog
22. SAVE Show dialog
23. BlackOut
24. StandBy
25. BlackOut (flash)
26. PAUSE (flash)
27. GROUP SPEED: 0/1
28. GRAND SPEED: x0.000
29. GRAND SPEED: x0.125
30. GRAND SPEED: x0.250
31. GRAND SPEED: x0.500
32. GRAND SPEED: x0.750
33. GRAND SPEED: x1.000
34. GRAND SPEED: x2.000
35. GRAND SPEED: x4.000
36. GRAND SPEED: x8.000
37. MASTER X-FADER RUN
38. CLEAR on KEY-release
39. CLEAR FLASH TRACK
40. Next file X-Fade (flash)
41. X-Fade time preset 1
42. X-Fade time preset 2
43. X-Fade time preset 3
44. X-Fade time preset 4
45. CAMERA move centre Left
46. CAMERA move centre Right
47. CAMERA move centre Up
48. CAMERA move centre Down
49. CAMERA move Forward
50. CAMERA move Backward
51. CAMERA rotate Left
52. CAMERA rotate Right
53. CAMERA rotate Up
54. CAMERA rotate Down
55. CAMERA ambient Brighter
56. CAMERA ambient Darker
57. CAMERA Smoke increase
58. CAMERA Smoke decrease
59. CAMERA Fullscreen/Desk
60. CAMERA Stereo ON/OFF
61. CAMERA Stereo Increase
62. CAMERA Stereo Decrease
63. Set Key-Bank: 01
64. Set Key-Bank: 02
65. Set Key-Bank: 03
66. Set Key-Bank: 04
67. Set Key-Bank: 05
68. Set Key-Bank: 06
69. Set Key-Bank: 07
70. Set Key-Bank: 08
71. Set Key-Bank: 09
72. Set Key-Bank: 10
73. Set Key-Bank: 11
74. Set Key-Bank: 12

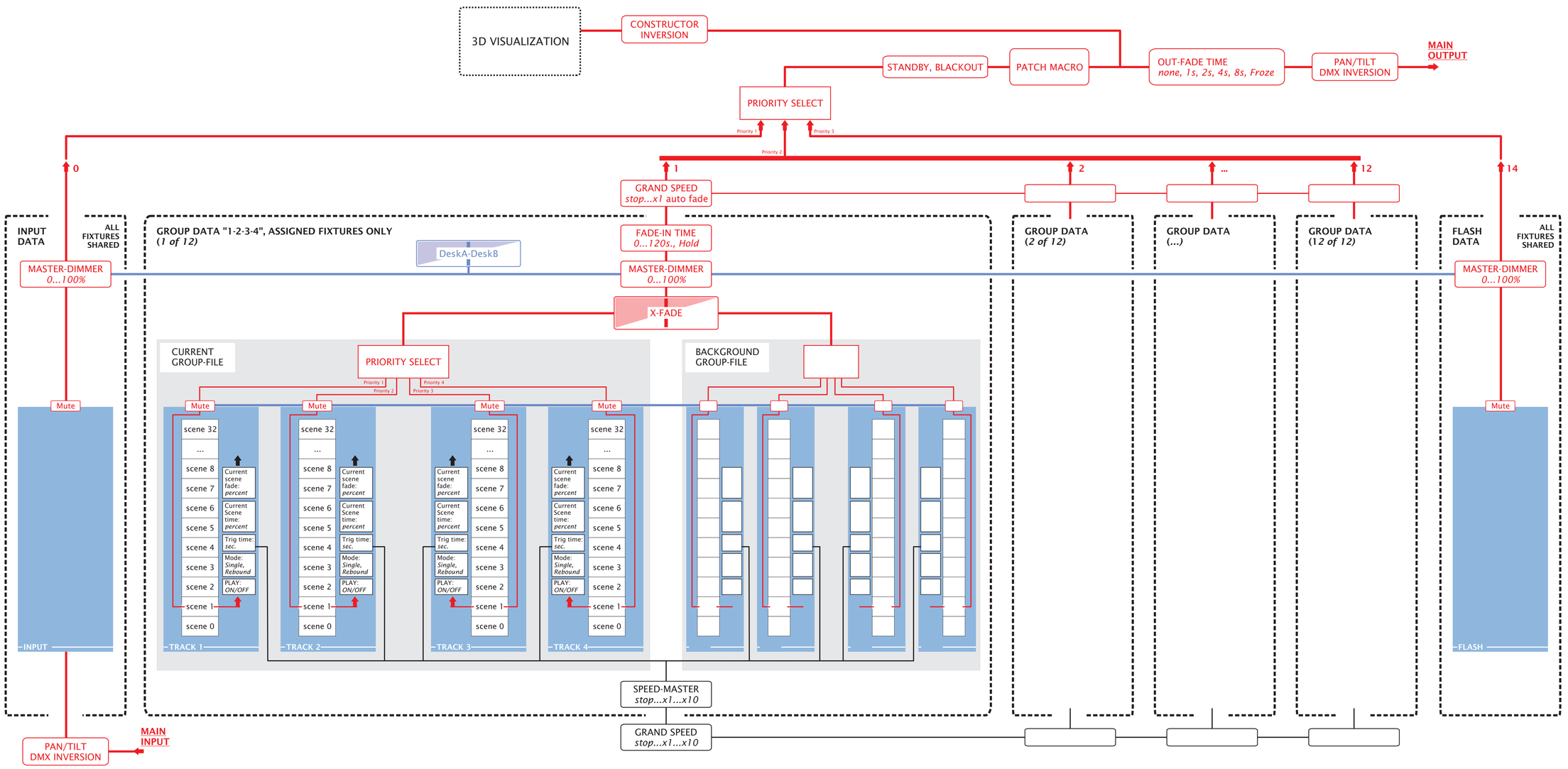
4.8.6 Using Full Processing Mode Hot-Keys in FullScreen

Any Hot-Key operation can be used in FullScreen.

To switch to FullScreen, select **FullScreen** from the **Room Menu**. Select **Desktop** to return to Desktop mode. *(For information on the Room Menu, see Section 1.5.5.2.)*

You can also assign Action "CAMERA Fullscreen/Desk" to a Hot-Key. Toggle the Hot-Key to switch between FullScreen and Desktop *(see Actions, Section 4.8.5 above).*

LIGHTCONVERSE
FULL-PROCESSING DIAGRAM



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Chapter 5:
DMX Visualization Only Mode

This chapter covers the following topics:

- *5.1 DMX Visualization Only Mode Fundamentals*
- *5.2 DMX Visualization Only Mode Hot-Keys*
  - *5.2.1 Camera Operations*
  - *5.2.2 Shortcuts*
  - *5.2.3 Using DMX Visualization Only Mode Hot-Keys in FullScreen*

5.1 DMX Visualization Mode Only Fundamentals

- **DMX Visualization Only Mode** is utilized when you would like connect a lighting console to the 3D Visualizer in order to pre-program your console. *(To select DMX Visualization Only Mode, see Section 1.5.3, Selecting Operating Modes).*
- If this is the first time operating LightConverse, the default demo Database will open. Otherwise, the last opened database will load. Note that a Database is saved automatically when closing LightConverse.
- The **Setup Menu** [1] includes access to the **Room Editor** *(Chapter 2)* and **DMX Setup** *(Chapter 3)* screens in addition to **Database** selection and creation *(Section 1.5.4)*.
- Press the **2D** [2] and **3D** [3] buttons to change views. To navigate in the 3D view, *see Section 1.5.5*.
- To switch to **3D Fullscreen** view, right click in the **Compass** area [4] to open the **Room Menu**, then select **Fullscreen** *(see Section 1.5.5.2 for more information on the Room Menu).*
- To minimize or close LightConverse, press the **Minimize** or **Exit** buttons [5].

Note: It is very important that the DMX mapping of fixture parameters in your console matches the DMX mapping of the fixtures that you have selected in LightConverse. If the parameters in your console and LightConverse are not identical, you will not be able to properly control the fixtures. Edits can be made to existing LightConverse fixture profiles ("fixture drivers"), in addition to creating new fixture drivers, by using the Fixture Constructor *(see Section 3.3 for more information on the Fixture Constructor).*

Once your fixtures are properly patched, you will be able to see them responding to your console's commands in the 3D Visualizer *(see Section 3.9 for information on patching).*

Figure 93

A graphical representation of incoming DMX signals is shown below the Visualizer screen. Signals from two DMX universes can be viewed simultaneously in separate sections (in Figure 93 above, only one section is shown [6]). Each section provides selective viewing of any of 16 DMX universes (including 16 universes over Artnet or sACN).

The **Out-Fade** section [7] controls the fade of DMX output without affecting what is taking place in the 3D Visualizer. This can be useful to slow down or freeze the output while you make changes in the visualizer.
Note: Would apply only if the DMX signal was being sent from a control console to LightConverse and then out to actual fixtures.

5.2 DMX Visualization Only Mode Hot-Keys

Note: DMX Visualization Only Mode Hot-Keys are pre-assigned.

5.2.1 Camera Operations

[Home] Move 3D Camera forward.
[End] Move 3D Camera backward.
[←] Move (Rotate if Ctrl pressed) 3D Camera left.
[→] Move (Rotate if Ctrl pressed) 3D Camera right.
[↑] Move (Rotate if Ctrl pressed) 3D Camera up.
[↓] Move (Rotate if Ctrl pressed) 3D Camera down.

Number Pad:

[1] Set 3D Camera view from front-left.
[2] Set 3D Camera view from front.
[3] Set 3D Camera view from front-right.
[4] Set 3D Camera view from left.
[5] Set 3D Camera view from ceiling.
[6] Set 3D Camera view from right.
[7] Set 3D Camera view from left-back.
[8] Set 3D Camera view from back.
[9] Set 3D Camera view from right-back.
[0] Set 3D Camera field of view (FOV) to zero (2D).
[.] Set 3D Camera field of view (FOV) to normal (3D).

5.2.2 Shortcuts

[PrintScreen] Save screen rendering to file (located in _Screenshots folder).

[PauseBreak] Quit Program.

[PageUp] Set ambient light brighter.
[PageDn] Set ambient light darker.

5.2.3 Using DMX Visualizer Only Mode Hot-Keys in FullScreen

All of the above Hot-Key operations can be used in FullScreen.

To switch to FullScreen, select **FullScreen** from the **Room Menu**. Select **Desktop** to return to Desktop.
(For information on the Room Menu, see Section 1.5.5.2.)

You can also press [Tab] to switch to FullScreen. Press again to return to Desktop.

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